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David Lee



John Buchanan

THE  
ECLECTIC  
Practice of Medicine and Surgery.

DESIGNED AS A

TEXT-BOOK FOR THE STUDENT,  
AND AS A  
GUIDE FOR THE PHYSICIAN AND SURGEON;

CONTAINING THE  
LATEST IMPROVEMENTS IN MEDICINE AND SURGERY.

BY  
JOHN BUCHANAN, M. D.

PROFESSOR OF SURGERY AND INSTITUTE OF MEDICINE IN THE ECLECTIC MEDICAL COLLEGE OF PENNSYLVANIA; MEMBER OF THE VARIOUS MEDICAL SOCIETIES IN THE UNITED STATES AND GREAT BRITAIN; AUTHOR OF WOMAN—HER DISEASES; CHILDREN—THEIR DISEASES; NEW REMEDIES; TREATISE ON VENEREAL; EPITOME OF PRACTICE,  
&c. &c.

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TO

ZOPHER C. HOWELL, ESQ.

PRESIDENT OF THE BOARD OF TRUSTEES OF THE ECLECTIC MEDICAL COLLEGE OF PENNSYLVANIA, &C.,

This Work is Inscribed

AS A TESTIMONIAL TO HIS UNWEARIED ZEAL

IN

AIDING THE GREAT WORK OF MEDICAL PROGRESS,

AND AS A

TRIBUTE OF THE ENDURING FRIENDSHIP AND ESTEEM

OF

THE AUTHOR.



THE  
ECLECTIC  
PRACTICE OF MEDICINE AND SURGERY.

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PART I.

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FEVERS.

FEVER may be defined as an effort of nature to overcome some molecular change introduced in the system by the presence of any poison or miasma ; a salutary effort of nature to eliminate or overcome. It may be described as a state in which all or most of the functions of the body are deranged.

The *nervous* system is shown to be deranged by the headache, pain in the back, lassitude, muscular weakness, mental torpor, confusion of the senses.

The vascular system is impaired.

Chilliness and burning heat testify to disorder of the process by which animal heat is produced and regulated.

Respiration and circulation are either slow and embarrassed, or performed with preternatural frequency and force.

Digestion and nutrition are suspended, or almost so ; hence the rapid emaciation of the patient. The secretions are either deficient, or, if abundant, are vitiated ; hence the thirst, dry skin, scanty urine, constipation or diarrhœa.

The fluids have a tendency to be depraved, the solids to be diseased, as shown by congestion and effusion in either of the three great cavities.

Fevers are divided by all writers into two great families : the *idiopathic* and the *symptomatic* ; idiopathic and essential, or symptomatic of some local lesion.

Some authorities deny the existence of idiopathic or essential fever, although they fail to give the precise lesion of which it is symptomatic. Intermittent fever has been by these writers supposed to be symptomatic of diseased spleen ; typhoid fever of intestinal derangement. The old division of fevers into *idiopathic* and *symptomatic* is a good one, both theoretically and practically. In the former we have no

appreciable lesion of the solids, at least at its incipieney, so that it is essentially an affection of the fluids of the body. In the latter we have a local lesion, a primary inflammation, which induces febrile reaction, the fever being a secondary disease; the one arising from agents acting on the blood, such as morbid matter or miasma being inhaled into the lungs, and there impregnating the blood, producing ague, yellow fever, typhus, as examples. The other is always produced by disease or local injury of some part.

### SURGICAL FEVER.

This fever is sometimes divided into the following varieties, which are merely grades of the same affection.

If there be violent inflammation in a healthy system, the fever will be mostly inflammatory, and is designated symptomatic or simple surgical fever.

If there be acute inflammation in a weakened or strumous system, or if the inflammation arise from certain specific causes of a depressing nature, such as a morbid poison, or if it attack certain structures, such as the veins, the fever is generally called irritative.

If the inflammation has terminated in exhausting suppuration, or if there be disease of a permanent character, which the vital energies of the constitution have no power to overcome, hectic will be established.

If the vital powers are entirely exhausted, the fever may assume a typhoid type. Fever arising from a local cause that is permanent, may be intermittent,—that is, occurring in regular paroxysms. This grade we usually find in conjunction with diseases of the urinary organs, such as strictures, fistula in perineo, irritation of the intestines. Of these different grades or types of surgical fever the first that merits our consideration, is the

**INFLAMMATORY STAGE.**—Purely inflammatory fever, surgically considered, accompanies every acute inflammation which arises from a severe or considerable injury, or which affects parts of importance and sensibility in healthy persons. It is a natural sequel of all injuries. It would seem as if nature required to feel the injury. Fever, after an operation, shows powers of resistance; it is salutary,—for, if after an operation there is rather a weak, quiet pulse, with nervous depression, with difficulty of respiration, nausea, irritability, symptoms of sinking of the vital powers, we do not consider our patient favorable.

If there is added to this inflammatory stage violent constitutional disturbance, with diffuse inflammation of the cellular tissue, from confinement of matter, phlebitis, &c., great febrile excitement, with extreme depression of the vital powers, we have the irritative grade. Its leading features are restlessness, anxiety, debility, mental depression, great oppression of the heart and respiratory functions, frequent rigors, rapid, sharp pulse, variable in force.

Hectic is the next stage. This is liable to supervene if there is any long-standing disease or source of weakness, which the vital forces, aided with remedies, are unable to remove. Hectic is very frequently

caused by profuse suppuration. It is frequently the precursor of purulent absorption or pyæmia; when we have pus absorbed, not only causing hectic and great constitutional debility, but tending greatly to the production of colliquative diarrhœa, ulceration of the intestines, abscess in the liver.

The term typhoid is the next link of the gradation. Typhoid is sometimes a type of symptomatic fever; an acute form of constitutional disturbance, occurring when the powers of life are very low, when the vital force is much depressed or exhausted. It usually follows hectic, or, in some constitutions, supervenes very soon after an injury. The cause of this state may be some circumstances producing immediate and direct depression of the vital powers, such as gangrene, dissecting wounds, severe injury, or operation suffered by an habitual drunkard, or one whose constitution is broken down. It is often caused by some disease of long standing, which has completely exhausted the constitutional powers; and both these conditions may be, and are frequently associated with a contamination of the blood, by putrid, malarial or poisonous matter.

**SYMPTOMS OF SURGICAL FEVER.**—Nervous depression, characterized by languor, lassitude, debility, rigors, shivering, succeeded by increased heat; excessively frequent, hard and vibratory pulse; pain, aching in the head, back and limbs; general derangement of the secretions; deficient, as indicated by the scanty, high-colored urine; dry, white tongue, hot skin, increased thirst, nausea, anorexia, constipation, aggravation of the symptoms in the evening, slight remission in the morning, sometimes delirium in the night.

In the hectic stage, emaciation and debility; tongue morbidly clean and red, especially at the tip and edges; appetite capricious; predisposition to diarrhœa; and profuse perspiration, colliquative sweats, pulse frequent and small, febrile excitement, frequent exacerbations, slight chills, followed by heat of skin, burning of the palms of the hands and soles of the feet, accompanied with a purely diagnostic sign,—a circumscribed flush on the cheeks,—thirst, restlessness, sleeplessness, profuse perspiration, &c.

If it assume a typhoid form, the pulse is very frequent and weak, or jerking; skin hot, and very dry; all the secretions deficient, tongue brown, dry and tremulous; lips parched, tympanitic abdomen, diarrhœa, &c.; and if there be a wound, it becomes dry, livid and glassy, and ceases to suppurate.

**TERMINATIONS.**—In the simple form of surgical fever, if the patient is about to recover, the urine becomes more copious, deposits a brick-dust sediment; the tongue becomes moist and clean; the skin cool and perspiring; the local inflammation either is resolved, or proceeds to a healthy suppuration; and the return of the appetite and other natural functions indicate recovery. If, however, from the irreparable nature of the disease or injury, life is destined to be destroyed, the pulse becomes continually more frequent, and subsequently weak, irregular and intermittent; the extremities become cold, and life gradually ceases with the failure of the circulation. If hectic be about to terminate fatally, the debility increases; the diarrhœa, the colliquative

sweats become more and more profuse; exhaustion; the limbs become œdematous; sordes form; great pain and tenesmus attend the diarrhœa, caused by an inflammatory or ulcerated condition of the glands of the intestines.

Sometimes the patient expires suddenly, the heart failing through mere debility; or, what is the more frequent termination, death may be preceded with typhoid symptoms.

The fatal termination may be due to the continuation of the original disease, or the induction of secondary disease in the lungs, liver or mesenteric glands.

But if the remedies act well, recovery from hectic is often remarkably rapid; and speedier still if the causes be removed, and no secondary disease established.

If the patient has assumed the typhoid grade, and death is approaching, the pulse becomes more rapid, wiry, tremulous, and ultimately imperceptible at the wrist; the eyes are dull, glassy and sunken; the temples and nostrils are pinched from atony of their muscles; the patient lies on his back; sinks to the foot of the bed; there is frequent hiccough; the abdomen is tightly distended with flatus; the sphincter ani is relaxed; involuntary discharges; the patient dozes imperceptibly, waking with a start, and picks at imaginary objects on the bed-clothes; low muttering delirium; starting and twitching of the tendons; latterly the skin becomes cold and clammy; respiration slow and laborious; coma supervenes, soon followed by death.

If the termination be recovery, the most positive sign of improvement is a diminution of the frequency and increase of the firmness of the pulse, with sleep; the patient sensible and composed; eyes brighter, tongue cleaning; and above all, if there be a wound, suppuration returning.

**PROGNOSIS.**—The prognosis in simple surgical fever is favorable under the new method of treatment, which consists in invigorating and sustaining the vital powers by stimulants, blood-elaborating diet, tonics, by exciting the excretions to the evacuation of their depraved secretions; the removal of pain and irritation, and aiding nature in her salutary and efficient efforts. The prognosis will be doubtful if hectic or typhoid symptoms have supervened; but there may be a chance of recovery if the cause is of recent existence, and admits of removal by operation or otherwise.

The prognosis will be unfavorable, if the constitution has been exhausted by any chronic disease. If the fever comes on after a recent injury or from extravasation of urine, it may be removed perhaps by an amputation or incisions; but if caused by a chronic abscess or disease of a joint and preceded by hectic, the prognosis is more unfavorable. If the hectic has been suffered to pass into a typhoid state, the prognosis is highly unfavorable.

**INDICATIONS OF TREATMENT.**—The indications of treatment of this class of fevers are very numerous, such as equalize the circulation, husband and support the strength and vital forces by stimulation and nourishment; avoid depletion; remove the cause if admissible; allay vascular action, nervous irritation; correct and excite the secretions, &c.



**TREATMENT.**—The treatment of surgical fever, which is symptomatic of an inflammation that is unavoidable, as after an amputation, compound fracture and other severe injuries can not be cut short, although its undue violence can be abated and perfectly controlled; the fever is salutary. The primary indication in the correct treatment of all fevers is the equalizing of the circulation.

**ACONITE.**—This agent is of great importance in controlling the violence of surgical fever. The tincture of the leaves is the best preparation, being an active diaphoretic, sedative to the circulation, at the same time it increases the nervous forces. There is no better remedy, none so useful in all cases in arresting and maintaining a normal circulation.

**VERATRUM.**—Another agent of great importance is the veratrum. The administration of a common or concentrated tincture will reduce the pulse and keep it reduced with a certainty, and to a degree which can be effected by no other drug. All who use this agent will be delighted with its prompt effect in bringing down a febrile pulse in a very short time from one hundred and forty to eighty or sixty in the minute, and keeping it to that low standard, if desired; it is a powerful arterial sedative, and not only that but a powerful depurant, stimulating the action of the skin, kidneys and secretory functions generally.

**LOBELIA.**—In small doses, frequently repeated, and well triturated in asclepin, is an excellent remedy to lessen vascular action. It is safe, prompt, energetic, and indeed some remedies of great note sink into utter insignificance in comparison with this plant. In high vascular action, with cerebral disturbance, when the application of every remedy fails in restoring rationality to the sensorium, the most admirable results often follow the administration of lobelia, or what is excellent an enema, largely composed of lobelia, or when accompanied with enervation and subsultus tendinum, the efficacy of the enema is much enhanced by the addition of valerian and capsicum, which, when thus combined, produces a powerfully revellent action, changes the scene of excitement and leaves the cerebral functions free.

Gelsemin, digitalin, saline diuretics are also much esteemed. As regards the digitalis, a simple infusion is excellent and possesses the power of reducing vascular action and lessening arterial excitement. It also diminishes the irritability of the system, increases the action of the absorbents, promotes diuresis. It affords us the means of regulating the pulse at will.

Bathing or sponging the entire surface several times daily, with a tepid, alkaline wash, more frequent if the skin be dry and parched. The very first sponging usually removes that biting heat which attends surgical fever. It also diminishes pain and arterial excitement, and by its stimulating effects on the capillary system, promotes circulation, has a most salutary effect in reducing the excited circulation and improving the general well being of the patient. If not incompatible with the surgical affection, an alcoholic vapor bath is also a most valuable adjunct.

There are other methods besides the above remedies of equalizing

the circulation, which might be resorted to in the absence of the above remedies, such as

**HEMASTASIS.**—The object in view in hemastasis is the arresting the blood in its course through the great veins and branches, and by this means deprive the vital organs of a considerable portion of their blood. This fluid, in short, is detained in the extremities by means of ligatures placed around them, and the blood is thus arrested in its course; the extremities become gorged and the body contains considerable less blood than usual. This practice has occasionally been found successful; it is of the utmost value in preventing hemorrhage, in relieving inflammatory engorgement, in removing simple vascular congestion, and in equalizing and restoring the balance of the circulation.

The process consists simply in tying a bandage round a limb sufficiently tight to arrest the venous circulation, while the arteries are allowed to pulsate. The veins thus become swollen and appear as if they would burst, all the blood they contain being thus effectually withdrawn from the general circulation.

If this be done in all the extremities at once, the skin becomes relaxed, the pulsation of the heart and arteries weakened, and if the patient has been previously weakened by loss of blood so that the vessels shall be partially emptied, we shall find the skin pouring out the most abundant perspiration and the patient feeling perfectly prostrated.

Hemastasis is capable of exerting undergiven conditions, a powerful control of the circulation; it controls the heart's action without exhausting the vital forces, or giving rise to ill consequences, which the protracted use of most of the arterial sedatives are likely to do, and in the hands of a judicious practitioner is a valuable therapeutic agent.

**STIMULANTS.**—In the asthenic forms of surgical fever, the above remedies are undoubtedly indicated, but where it is of the asthenic type, stimulants are the agents that are best calculated to control the circulation and bring the pulse of one hundred and forty to seventy or eighty and improve its volume.

If stimulants are indicated in any case of surgical fever, neither flushed cheeks, thirst, depraved secretions nor any minor consideration must deter their use; they must be given liberally, perseveringly, day and night.

A judicious use of proper stimulants will not only lessen the frequency of the pulse, but will dissipate the flush from the cheeks, improve the secretions and assimilation.

Even the suggestions of organic chemistry, valuable as they often are in the practical business of the bed-side, are sometimes to be disregarded in the necessity that may exist for prosecuting any single and well-indicated plan of treatment.

Some might argue that when the urine is ammoniacal, the perspiration alkaline and foul like the breath, and a general tendency to putrescency, that stimulants would be unsuitable remedies, yet all these morbid conditions are corrected by the judicious use of stimulants, such a stimulant as brandy given in milk, so as not to affect the senso-



rial functions. The exhibition of stimulants in the correct treatment of surgical fever, is not to be founded upon any one thing; the general condition of the patient must be looked to, for no practical rule can be laid down for every case.

The pulse might be made the criterion, but even where this is but slightly implicated, where notwithstanding the most extraordinary group of symptoms, affecting the various organs; the heart, in the middle of the storm seems to be in a state of calm and quiet. In the treatment of fever, the stimulating plan is the most successful, but besides stimulants the patient should have food. It is of great importance to give nourishment in disease; the nervous energy must not only be kept up by alcoholic stimulants but the system must be supported by appropriate food.

There is no mistake more fatal than withholding food. It is of vital importance to nourish fever patients well. The stomach has, in numerous cases, excellent powers of digestion, and the patient may be allowed with advantage many articles usually forbidden.

My rule in practice is, that so long as the patient can swallow, so long as he is able to take nourishment, so long as he can swallow milk punch, no matter how dreadful or apparently hopeless the symptoms may be, hold on to him; we must fight the ship while she swims. In this salutary effort of nature, where the vital forces work mysteriously to throw off the burden, every hour of compelled life is a clear gain. Over and over again our efforts will be crowned with success. We often meet with patients pulseless, their lungs filled up with secretion, abdomen tympanitic, dreadful diarrhœa, the patient insensible, and even under these circumstances a recovery is possible. But that recovery can only be effected by the steadfast determination of the physician not to desert his post until the vital spark has actually fled, and in hoping against hope it is an error in the right direction.

ANOTHER INDICATION is to allay nervous excitement, for which purpose the arterial sedatives are usually sufficient, with sponging and sudorifics.

SUDORIFICS for this purpose are most beneficial and effectual when given with a mild purgative, the object aimed at being the restoration of all the secretions which the irritable state of the system has a tendency to suppress. We must not act upon one particular secretion, but upon all, for as the skin is dry, the bowels constipated, the bile deficient, the urine less abundant than natural, each of these organs require the proper stimulus to increase its action.

In all cases allay pain and give the patient sleep.

THIRST is an important symptom in the treatment of fever. Almost every person in fever complains of great thirst and calls for drink, especially of a cooling character. There is nothing so likely to abate heat, attenuate the humors, remove spasms and obstructions, promote perspiration, increase the quantity of the urine, and, in short, produce every salutary effect in an ardent, inflammatory fever, as drinking plentifully of water, gruel, lemonade, or any cooling liquid of which water is the basis. The necessity of diluting drinks is emphatically pointed out by the parched skin, dry tongue, the burning heat, as well

as the unquenchable thirst of the patient. The administration then of abundance of diuretic beverages, promotes the elimination of the contaminated material from the system.

A great deal of the blood is contaminated, and never can circulate again comfortably in the system, and to aid in getting rid of this effete matter we must give drink, diuretic drink that will keep the drains free; at the same time that we stimulate and increase the secretions, we must restore what is lost by promoting the formation of good blood, which is to be effected by general tonics, more especially iron (pyrophosphate,) good diet; nourishing, easily assimilated food, as much as the digestive organs can bear.

I have never seen any good results follow from the use of purgatives in fever; undoubtedly, we must have a regular action of the bowels at the commencement of treatment, we must approximate health, but a continued use of purgatives should be avoided, more especially when it is likely that they may occasion an injurious disturbance of any diseased or wounded part, as a compound fracture.

TONICS are always indicated; they must be given to support the strength, such as quinine, iron, hydrastin, cornin, or the bitter tonics in infusion.

Iron, either the pyrophosphate or the wine of iron, in urgent cases of debility may be given with the very best results; where there is a low condition of the constitution and sinking of the vital powers is threatened; in such cases the iron may be combined with cypripedin and xanthoxylin; but if at any time in the varying progress of the fever, excitement appears to prevail, the pulse being more accelerated and pain aggravated, tonics and other measures must be laid aside, and alcoholic stimulants must be depended on.

A very decided tonic in surgical fever, is the permanganate of potash in half grain doses thrice daily.

NERVINES must be given to procure sleep and allay pain. In strumous patients we have usually great irritability, restlessness and wakefulness. To fulfill this indication nothing is better than the diaphoretic powders. They procure refreshing sleep and at the same time promote perspiration. A sufficient dose must be given to keep up a gentle perspiration.

Fresh air is an indispensable element in the treatment of fever, and even a change of air when it can be had, is also advantageous in some of the phases of hectic.

In this same stage, profuse perspiration must be checked by dilute sulphuric acid and bark, or an infusion of crawley or full doses of myricin or nitro-muriatic acid, tonics, sponging with simple water impregnated with salt or some vegetable astringent, or hydrastin and phosphate of iron.

If the fever be of an intermittent character, as we have in some constitutions, quinine, cornin, bebeerin, prussiate of iron and quinine, lupulin, gelsemin, are indicated.

In the hectic and typhoid stages of surgical fever, diarrhœa is a frequent complication. Now this species of diarrhœa depends on an inflamed or ulcerated condition of the glands of the intestine, and

reason will at once suggest that attempts to arrest it with opii et tannin or other astringent remedies will often be not only irritating but highly mischievous.

If there be diarrhœa and it be attended with pain, tenderness and tenesmus, the proper remedies are absolute rest in bed; an alcoholic pack over the abdomen, or toasted salt; or an occasional stimulating liniment; the very mildest kind of diet, arrowroot, &c.; followed with injections of an infusion of matico, or starch and tannin; internally, small doses of neutralizing mixture with gelsemin; or the fluid extract of cranesbill and gelsemin; or equal parts of myricin and populin triturated with capsicum; or *nux vomica* with xanthoxylin and leptandrin, or turpentine, &c.

The *nux vomica* in small doses will give the best results; it acts by stimulating the nervous energy of the intestines, enabling the lacteals to absorb the nutriment from the food and aiding the large intestine to retain the fœces, whilst the xanthoxylin acts as a tonic, and the leptandrin stimulates the liver, and thereby promotes the healthy action of the bowels.

In some cases the subnitrate of bismuth answers the indications most admirably.

Hiccough is easily allayed with carbonate of ammonia or ether.

All through the varying stages of a case of fever, the strictest attention should be paid to diet and hygiene; for the former light nutritious food, beef essence, eggs, ripe fruit, roasted apples, jellies may be given, but no acids, pickles or spices should be allowed; for the latter fresh air is most indispensable to the patient, using the precaution that a current of air be not permitted to reach him. The patient must not be loaded with bed clothes under pretence of keeping him warm, or preventing him from taking cold. Such a practice increases the fever, debilitates the patient, retards, instead of increasing his general comfort and well being.

Cleanliness is essential, the chamber well aired, and a solution of the permanganate of potash allowed to be exposed in the apartment; the patient's mouth should be well washed with a little wine and water; the forehead, temples and hands should be frequently bathed with vinegar and water; this is refreshing to the patient. All noise and disturbance should be avoided, the patient kept as quiet as possible, no talking nor whispering in his chamber and but few attendants about.

## IDIOPATHIC FEVER.

It has been correctly estimated that one half of the human family die from idiopathic fever. The functions deranged in fever are: the nervous system, the circulating, and those organs that constitute the systems of secretion and excretion. The chain of diseased organs consists of the brain and spinal cord, the heart and arteries, the secreting and excreting extremities of these arteries,—especially their terminations in the skin and mucous membrane. It is nevertheless true that the prime cause which produces fever acts directly on the nervous sys-

tem, and in this way the whole system is affected to a greater or less extent.

The causes which produce idiopathic fevers are specific agents, which operate by being absorbed into the circulation, and conveyed to those structures for which they have an affinity or attraction, thus imparting those peculiar and specific actions which induce fevers.

CAUSES OF FEVERS.—The causes of fever are either predisposing or exciting. Anything that debilitates or impairs the tone and resisting power of the nervous or muscular system, may be denominated a predisposing cause of disease: as excessive physical or mental exertion, protracted grief, anxiety, fear, chagrin, disappointment, ill-ventilated abodes, improper food, insufficient clothing, over-indulgence, filth, &c. The exciting causes induce fever by a direct impression, as miasmata, contagious and epidemic effluvia, noxious gases, vicissitude of temperature, atmospheric and electrical influences.

The exciting causes do not operate so as to produce fever, unless the system is prepared or rendered susceptible to their influence by debility or some other predisposing cause. Hence the importance of sound physical culture, a rigid avoidance of all those things which can impair the normal integrity of the organism; a proper system of physical education, a correct system of dietetics.

Idiopathic fevers have been classified under the following general divisions: *ephemeral fever*,—those which arise from slight temporary causes, and which terminate spontaneously when the exciting cause is withdrawn. *Malarial fever*, originating in malaria; a specific form of disease. *Intermittent, remittent, continued and eruptive fevers*. In these fevers there are certain peculiar characteristics, which distinguish them respectively from all other maladies. But we never find two cases of the same type running precisely the same course, or presenting the same symptoms. Climate, age, sex, temperament, habits, &c., modify the character of each case.

The course of a fever varies during its progress; consequently, there are some arbitrary divisions spoken of, but which by no means can be relied on; for some fevers run their course without the supervention of these stages. They are as follows: the *forming stage, cold stage, hot stage, sweating stage, collapse*. This is merely artificial; facilitates description.

### MALARIAL FEVER.

Of all fevers this is the most extensively known, and vastly prevalent in our country; and it would seem that there were some indispensable conditions necessary to the development of this fever,—such as an elevated temperature, decaying organic matter for supplying the material for the generation of this poisonous agent, whatever it may be; surface water, which impregnates the air with water, promoting those chemical actions in certain soils, generates malarious exhalations; favors decomposition of a luxuriant vegetation, produces animalculæ or microscopic plants; and thorough evaporation and condensation produces electrical and chemical changes. In sec-



tions of the country where this marsh or paludal poison exists in a high degree, we have an imperfect physical development, an engorgement of the abdominal viscera, more especially the spleen; general inertia and torpor. All the physical, intellectual, and emotional faculties are depressed from the action of the poison. If the atmosphere holds a large quantity of the specific poison, a short time may elapse before the disease is developed; if the quantity is smaller, it will take a longer period to excite the malarial action. If the fever is once established, it may assume any one of the various types usually observed.

If the atmosphere is strongly saturated with miasm, the most trifling exposure to vicissitudes of temperature or exhausting exercise will develop true intermittent fever.

If there is less malaria in the atmosphere, but other causes combine with it to derange the ordinary operations of the different organs, the disease has less of chill and more of fever.

If the amount of malaria is still smaller, there may only be a slight remission; no intermission of the fever.

If the malaria exists in a greater or less degree, aided by other causes of disease, the remission may be scarcely perceptible, and then the case may be a continued fever.

If these various forms of malarious fever are improperly treated or tampered with, they may merge into a low form of typhoid; and if the patient is greatly prostrated or exhausted by any cause, we may have it assuming a congestive form.

## INTERMITTENT FEVER.

This fever may be ranked with those diseases affecting the cerebro-spinal system. In all the forms of this fever, the interval that elapses between the commencement of one paroxysm and another varies; some cases having an interval of twenty-four, forty-eight, and seventy-two hours from one attack to another. From this circumstance, these different types have received different names:—as *quotidian*, or twenty-four hour type; *tertian*, or forty-eight hour type; *quartian*, or seventy-two hour type. These have been variously subdivided. These paroxysms evidently show that the affection is peculiarly affecting the nervous system.

**SYMPTOMS.**—A paroxysm of intermittent is composed of three stages: the cold, hot, and sweating stages.

Before the approach of the cold stage, there is a feeling of lassitude, debility, uneasiness, pains in the head, back or loins, and slight sensations of external and internal cold; loss of appetite, disinclination to physical or mental exertion, and a disposition to yawn.

**THE COLD STAGE** supervenes by the extremities feeling cold and contracted; the surface pale and shrunken, rough; diminished sensibility; a sensation of cold along the spine, which diffuses itself over the whole body; then tremors, chattering of the teeth; nails purple; the skin the appearance of goose-flesh; respiration labored, rapid, and imperfect; oppression over the region of the heart; countenance pale,

leadens, earthy, or livid, shrunken, and expressive of anguish; eyes dull and sunken; lips livid; prostration. The pulse is variable. Its duration is various, terminating sometimes in ten minutes or in a few hours.

**THE HOT STAGE.**—As soon as the chills abate, flashes of heat pass over the body, until in a short time the hot stage is fully developed. Here the skin is hot and dry, countenance is flushed and full, mouth dry, tongue parched, urgent thirst, headache, respiration rapid and anxious, restlessness, pains in different parts of the body, disturbance of mind; pulse rapid, sharp, and bounding. This stage also varies; it may continue a few hours, or for several days, constituting continued fever.

**THE SWEATING STAGE** follows the hot; a perspiration makes its appearance upon the forehead and extremities, which is soon diffused over the whole body. As the sweating becomes more and more profuse, the febrile symptoms gradually subside, until the paroxysms terminate. But the symptoms are often reversed, or one of them absent; or if present, only a few of the symptoms will be recognized.

The division of intermittent fever into four varieties, namely: the *inflammatory*, *congestive*, *gastric*, and *malignant*, is a good one,—a division founded upon the general characteristic of the disease, and the blending of symptoms peculiar to each class respectively.

**CAUSE.**—The decomposition of vegetable matters by the aid of solar heat and moisture, is the only condition necessary to develop the morbid principle.

**PROPHYLACTIC MEASURES.**—To cultivate the powers of resistance for the preventing of malarial fever, thorough hygiene should be the rule. The *diet* should be nutritious, but light; that which gives tone to the system, and enables it to resist morbid influences. The *clothing* should be adapted to existing circumstances. All stimulating drinks should be rigidly avoided. Habits of life which invigorate and promote health, should be adopted. All depressing passions should be avoided, as well as all over-indulgence. Wear flannel next the skin; thorough hygiene, &c., &c.

**TREATMENT.**—If circumstances permit, remove the patient to a dry abode; a healthy place, free from malaria. Then put him upon appropriate remedies. If the cold stage is supervening, place the feet in hot mustard and water, or give a spirit-bath; follow this with an emetic of the C. powder of lobelia.

This will act specifically on the nervous system, and especially upon the vase-motor part of it; and if it acts well, it often affects a cure. Then, after the action of the vapor-bath, put the patient to bed, with some extra covering; let him drink some warm teas, and put him on veratrum, aconite, and asclepin, in sufficient doses to maintain moisture on the surface, applying cold packs to the head; and if there is no interruption, give some special remedy to avert or break it up; for if it is not broken up, let it be ever so simple a form, it is apt to damage the structure of some organ, and generate a kind of cachexia, the most remarkable of which is leucocythemia or white cell-blood.

The remedies made use of by eclectics are positive in their charac-

ter. The following are the principal: quinine, prussiate of iron, gelsemin, podophyllin, lobelia, eupatorium per-bebeerine, cornine, salicin, chinoidin, capsicum, santonine, salt, nitro-muriatic acid, nux and rhus, charcoal, aconite, cerasin, lupulin, populin, senecin, &c., &c.

The best time to give the remedy is at the expiration of the paroxysm, or several hours before an expected attack, and it must be repeated at regular intervals and after the disease is interrupted; it is advisable to keep up the action of the remedy at proper intervals. The best combination is the following:

R $\bar{y}$ .—Sulphate quinine;  
Prussiate of iron, āā gr. x;  
Gelsemin, gr. iii;  
Eupatorin-per, gr. iii.—*Mix.*

Make six powders, one every two hours; or,

R $\bar{y}$ .—Bebeerine,  
Quinine,  
Phosphate ferri, āā gr. x.—*Mix.*

Make six powders as above; or,

R $\bar{y}$ .—Chinoidin,  
Capsicum,  
Santonine,  
Cornine, āā gr. s.

To make three grain pills, one or two every hour, and after it is broken keep up the action of some remedy as Huxham's tincture cinchona or syrup boneset and salt for a week or ten days.

All through the case maintain regular secretion and excretion by the proper remedies, and if there is enlargement of the spleen apply the irritating plaster and give cinchona.

If the patient is of a high bilious temperament, a weak infusion of eupatorin perfoliatum is an excellent remedy.

If the type is of the quotidian and tertian, combine the anti-periodic with nux vomica; and more especially is this remedy indicated if the patient is intemperate or of sedentary habits. If the type is the quartan and a female with deranged menstrual function, give pulsatilla and senecin.

The only preparation of iron that is admissible in the treatment is the Prussian blue.

The adjunct treatment with the remedies and their indications, lobelia is given with marked benefit, where the patient is wretched and obstinate; *veratrum* where there is violent fever; *belladonna* where the head suffers, pulsations of the carotid, red injected eyes; *capsicum* in the phlegmatic temperament, flabby mucus constitution; *cedron* is most applicable to the quotidian form; *staphysagria* if the chill occurs in the evening; *iodide potassium*, if it prevail in a scrofulous constitution; *lycopodium*, in sour-smelling sweat and anasarca; *gelsemin* is a true specific; *macrotin* operates largely on the brain and nerve centres, and acts in some cases as good as quinine.

## CONGESTIVE INTERMITTENT.

Malignant or congestive intermittent. This form of intermittent exists when the vital force is so depressed by the influence of the miasmatic poison, that no reaction takes place. The heart is unable to impel the blood, which becomes congested in the internal organs and large venous trunks. If the vital energies do not fail in the first paroxysm, they become more disposed in each succeeding one. The great organs, as the stomach, spleen, liver, lungs, heart and brain, are respectively liable to pernicious engorgements or obstructions. The symptoms are the same as intermittent, with the exception that there is more depression, the skin mostly blue, irregular respiration.

The seat of congestion is indicated usually by the severity of the symptoms; the spleen is usually double its natural size; the liver is similarly affected, so is the lungs, but congestion of the brain is the most alarming symptom.

The remedies that are successful in the treatment of intermittent in every form are such as act primarily on the ganglionic system of nerves. The successful therapeutic agents are limited in numbers, cinchona and its preparation; nux, iron, salicin, bebeerine, &c. The size of the dose requires to be large. After this form there is a disposition to congestion and turgescence of the spleen. Besides its primary functions as a component part of the chyloporotic system, the spleen forms a natural reservoir for the reception of the blood, when repelled from the external surface and driven in upon internal organs; in this manner it shields the vessels of remote parts from sudden and excessive distention. It is liable therefore to turgescence upon any disturbance of the circulation. The best treatment is an equalized circulation, with cinchona, bromide of potassium, nitro-muriatic acid.

## REMITTENT FEVER.

Bilious remittent prevails in all countries where malaria is developed in connection with a high degree of atmospheric temperature. It is generally preceded by lassitude, debility, with soreness and stiffness of the muscles of the neck, back, and calves of the legs; bitter taste in the mouth, nausea, aversion from food, indescribable uneasiness and sense of fullness about the epigastrium, torpor of the liver, constipation, heaviness of the head, pain over the eyes. These symptoms increase in intensity, until an attack is ushered in. In the course of some time the skin becomes hot, dry, constricted, yellow, the face flushed and turgid, eyes red and suffused, respiration is hurried, pulse quick and frequent, prostration of strength, restlessness and watchfulness.

The patient complains of pain, fulness, weight and tension of the head, pain in the back and legs, weight or oppression at the epigastrium. The urine is scanty and muddy. Vomiting is often persistent, but usually comes on about the third day; the matter thrown up being yellow, greenish.

After the fever lasts two or three days the skin becomes intensely yellow, the adnata of the eyes showing it first, and it is this distinc-



tive symptom of the yellowness of the white of the eye, which is the grand diagnostic mark by which to distinguish this disease from small pox in its incipient stage. The exacerbation lasts from eight to twelve hours, when there is an amelioration of the symptoms.

In mild cases the skin becomes moist and the patient falls asleep, and after some hours of apparent relief the patient finds the fever returning; and this exacerbation progressing in intensity until it reaches its height. In the subsequent exacerbations the symptoms all become aggravated, and the paroxysms like those of ague, though coming on every day are most violent on every second day.

## GASTRIC REMITTENT FEVER.

This form of bilious remittent is mostly prevalent among children. If not checked it rapidly progresses and speedily involves the general nervous and arterial systems. The symptoms resemble the bilious.

TREATMENT.—Remittent fever, if early and properly treated, yields readily to antiperiodic and alterative remedies. The remedies should be well selected to meet the different forms of the fever. For example, when the *gastric symptoms predominate*, the following plan of treatment is very successful: give an emetic of the C. powder of lobelia, and a drink of some mild diaphoretic tea; when that has operated, combine euonymin, leptandrin and hydrastin, and give a suitable dose every two hours, sponging the surface repeatedly with the alkaline wash. This plan of treatment frequently arrests the disease. If the case is first seen in the cold stage, an alcoholic vapor bath, then put the patient to bed and keep up diaphoresis by the C. tinct. serpentaria or asclepias, sponging the body frequently with the alkali. If this does not seem to stem the onward march of the disease, sinapisms might be applied the whole length of the spine, and the patient put upon say twenty drops of the following every half hour: *R*.—Fluid ext. eupatorium, lobelia, cypripedin and scutellaria, āā.—*Mix*.

If the stomach is very irritable and there is an incessant retching, give veratrum and epec in small but repeated doses. To alter the type of the fever and bring the remission into perfect intermissions, if possible, we would give some such combination as quinine, phosphate of iron and hydrastin, or bebeerine, salicine and cornine. But if the irritability of the stomach is great, that must be allayed with small quantities of saline effervescence, and a drop or two of gelsemin and local applications to the stomach, as a decoction of chamomile flowers or a mustard poultice is excellent.

As soon as the fever yields and a perfect remission takes place, place the patient upon some preparation of cinchona, and if it does not act kindly, use C. tinct. tamarac.

In cold seasons we may wait for a perfect and complete remission before we give the cinchona; but in warm seasons we ought to administer it even on the most imperfect and short remission, and although it may not prove sufficiently efficacious to prevent a fresh attack at first, yet it will seldom fail to mitigate the subsequent returns of the fever, and will at last bring about a regular and perfect intermission.

All through the case act mildly but effectively on the liver, by lepidandrin, euonymin, phytolacin and nux vomica, or if the stomach will bear it, the anti-bilious physic.

All through the case let the patient have sleep—this is important in all diseases. Hyosciamin and lupulin answer well.

IF THE BILIOUS SYMPTOMS PREVAIL, the liver should be attended to by the addition of nitro-muriatic acid internally and in the form of baths. If there is irritation of the mucous membrane of the stomach and bowels, sub-nitrate of bismuth, nux, rhus, dulcamara, &c., are most appropriate.

If the symptoms denote worms, santonine, turpentine, spigelia, &c. After a complete remission is established, everything that may have a tendency to bring on another attack should be carefully avoided during the stage of convalescence.

### NON-MALARIOUS CONGESTIVE FEVER.

The precursory stage of congestive fever is preceded by languor, headache, disturbed sleep, loss of appetite, chilliness, swollen tongue, debility.

The symptoms will vary as to what particular organ sustains the violence of the attack.

If the *brain* be the part affected, headache, tightness in the head, pupils contracted or dilated, ideas confused, pulse slow and laboring; and finally coma, paralysis, convulsions.

If the *bowels* are the seat of the congestion, anxious and distressed expression of countenance, eyes sunken and glazed, nausea, vomiting; bowels burning hot, tender on pressure; extremities cold, tongue swollen and coated; bowels constipated or relaxed; spasms, uneasy, sighing, stertorous breathing.

If the *disease is concentrated* in the *lungs*, there will be rapid, laborious, obstructed respiration; pulse irregular, or intermitting cough; face and skin purple from imperfect decarbonization of the blood; surface cold, and pains in the chest.

In these different varieties of congestion, the physical and mental energies of the system are below the normal standard.

CAUSES.—Excessive cold, atmospheric changes, drinking large quantities of cold water when the body is heated, insufficient clothing, improper food, great mental exertion, &c., &c.

TREATMENT.—In the cerebral form of congestive fever, the remedies most successful are: aconite, belladonna, stramonium, hyosciamin. In the abdominal form: asclepin, sub-nitrate bismuth, phosphoric acid. For the pulmonary form: senega, lobelia, sanguinaria, carb. ammonia, hyosciamin.

Congestive fevers attack the organism suddenly and violently; and if not arrested, will run to a speedy and fatal termination; so that at whatever part the congestion is located, our object is to apply an antidote to the over-action, and control its influence; we must not permit the affection to make progress from a too timid and sparing exhibition of remedies. In the early treatment, never lose sight of the

vapor-bath; and as the vital forces are low, give suitable doses of quinine, xanthoxylin, capsicum; and if the condition of the stomach demand it, a stimulating emetic. All through the case, look to the skin with the alkaline sponging; see to the liver and bowels with the neutralizing cordial and leptandrin. The most thorough hygiene should be observed; diet should be mild, nutritious, easily digested, and convalescence should be carefully watched.

### SPOTTED FEVER.

Cerebro-spinal meningitis commences with a chill, shrunken appearance of the skin and features; and the patient gradually sinking into a state of stupor, from which he seldom revives. In a short time the muscles are rigid; the pupils insensible either to light or touch; the surface of the body very sensitive to the touch; the head is thrown back; the jaws fixed; the breath is drawn with a hissing sound through the closed teeth; the patient is blind and deaf. In children the stupor is liable to be broken by frequent convulsions. As the disease progresses the stupor increases; large dark spots rise upon the skin, some of them proceeding to form blisters. In some cases the patient lingers for days, with all the nerves of sensation and motion paralyzed; and he is usually deaf and blind.

Occasionally a partial revival from the stupor; then delirium and death. In a few cases recovery takes place. If the patient lives through the first stage of prostration, fever succeeds, which is of a marked typhoid character; hurried breathing; pain in the head and back; flushed face, of a dark red or purplish hue; tongue dry, brown and black.

CAUSES.—Cerebro-spinal meningitis is not contagious, but depends on a peculiar epidemic influence.

PATHOLOGY.—The pathological features of this disease are well marked by a complete concentration of the morbid influence on the brain and upper portion of the spinal cord. Cases that the author has examined exhibit congestion, inflammation of the base of the brain, medulla oblongata, spinal cord,—and an amount of effusion or serosity about the cervical portion of the cord, truly astonishing. It would seem to be here that the disease takes its hold and develops itself.

TREATMENT.—The only treatment successful in my hands has been the application of the actual cautery on each side of the spinal column, and painting over the spinous process with tinct. iodine, in which a large amount of morphia was dissolved.

The best internal remedy is large doses of brandy and quinine;—give it to prevent sinking, and to aid the vital powers. The rule is, if it soothes and restores; if it quiets the irritated stomach—as is demonstrated by the improvement of the pulse—it acts well; but if it causes nausea, pain in the stomach, headache, it must be discontinued. I have tried other remedies, as capsicum, xanthoxylin, lobelia, carb. ammonia, &c., without success. Have the bowels opened with enema of a solution of podophyllin and colocynth; draw off the urine every three

hours with the catheter; sponge the skin with strong alkalis, and apply mustard to the limbs.

When rigidity exists, depend upon lobelia and an alkali. The brandy and quinine should be persevered with till the stupor yields; then put the patient upon large doses of aconite and bromide potass; follow this with belladonna, or nux vomica, or phosphorus, or gold, or xanthoxilin, or scutellarin, according to the indications, keeping up free secretions; giving a liquid, but nutritious diet.

Convalescence is best established upon a course of alteratives, tonics, and those nerve specifics, phosphorus, cinchona, rhus.

### TYPHUS FEVER.

This fever arises from a specific cause; is attended by rigors, chilliness, headache, mulberry or measly rash, frequent pulse, stupor, delirium, dry brown tongue, prostration, constipated bowels; usually terminating about the twenty-first day.

But the symptoms at first may be very insidious,—merely lassitude and debility, sense of fatigue, impaired memory; rigors slight, alternated with flushes of heat, pain in the head, back, limbs, loss of appetite, and general stupor; and these symptoms may prevail for a week or two, and the patient not quite sick enough to go to bed, till he becomes slightly delirious. The tongue is very significant. As the disease progresses, the eyes become suffused; the measly eruption prominent; the countenance dingy; there is ringing in the ears and deafness; incoherent talking, delirium, tremor, coma, &c. The symptoms, however, are much modified, according to the severity of the attack, the parts most specially affected.

CAUSES.—The poison of typhus is a specific agent, developed when a number of persons are crowded together in close, filthy, ill-ventilated apartments. This specific animal poison rarely makes its impression unless the health is somewhat impaired. When all the organs are in a normal condition, and operate in a healthy manner, an equilibrium is maintained which enables the system to resist the action of noxious agents. It is a disease unknown among savage tribes; it requires the unnatural and artificial habits of civilization to depress the vital forces for the reception of the poison.

Typhus originates in anything which tends to impair the essential or vital properties of the blood; over-crowding, defective ventilation, insufficient nourishment. Its accession is marked by no very special symptom, but such as occur in acute diseases generally, unless it be the stupor, sensorial disturbance; and about the fifth or eighth day the mulberry eruption—not fading on pressure—but persistent; the duration of the fever being from fourteen to twenty-one days.

Typhus is pre-eminently a disease of the blood,—the animal poison acting primarily on the blood; thence on all the organs of the body. This poison is supposed to act as a ferment,—one portion of the poison being endowed with the property of communicating it to another; and then a series of decompositions takes place within the blood corpuscles, which give rise to other ferments. In other words, we have the myste-



rious chemical process known as *catalysis*, the operation of which is one substance acting upon another, developing in it latent powers and properties not hitherto seen.

**TREATMENT.**—In the management of typhus, brandy or champagne is highly beneficial; and there can be no doubt of its curative power over this poison when properly applied. Indeed, this is one of our best remedies for reducing the temperature of the body, as well as for supporting the patient. Best given in the form of milk punch.

This remedy should be commenced with on the first symptoms of the attack, and continued until convalescence is established. The dose should be regulated by the state of the pulse; if it is upwards of one hundred and forty, give it largely until it reduces its frequency. It must be continued day and night perseveringly.

Our next best remedy is cold water, internally and externally. Sponge the patient every two hours. This operates by abstracting the superfluous heat, reducing the animal temperature; but it also acts as a tonic, imparting tone and vigor to the debilitated and relaxed capillaries. The frequency of the sponging must also depend on the severity of the symptoms.

There must be the most positive hygiene. By this mode of treatment, we do not contend that typhus can be cut short; but its grave symptoms can be mitigated. We cannot break it up, but we can conduct it to a favorable termination by judicious management. It is also undoubtedly true that convalescence will be hastened by proper treatment. The distinction of typhus into cerebral, abdominal, and the like, is not well founded, being essentially a malignant blood disease. Such distinctions are unwarranted. It is true, if the brain be impaired, or the viscera of the abdomen weakened, it may act with greater violence on these parts. The remedies to be depended on are few but valuable.

Quinine, hydrastin, belladonna and rhus will meet the indications. Quinine is most applicable where it falls with great violence on the brain, where the powers of life are low. It might be advantageously combined with xanthoxylum, and alternated with aconite and belladonna. The powers of aconite, where there is an excessive action of the circulatory vessels, are too well known to be described.

If the patient becomes restless, nervous, and the temperature lowered, and the vital powers greatly diminished, camphor is most excellent.

Nitro-muriatic acid in six drop doses every few hours, is a highly important remedy in many cases. Phosphorus is also effectual as a decided tonic. If there is great adynamia, diffusible stimulants should not be spared, and if the petechia are dark or threatening putridity, try a tablespoonful of yeast every few hours. All through the case brandy and special sedatives to reduce the frequency of the pulse. The bowels should be kept open by giving small doses of the neutralizing mixture, and of all remedies next to stimulants, I am partial to the mineral acids, they are beyond doubt the best, their effects are truly great. With regard to the use of yeast, it is never given but with advantage. In typhus fever we regard it of the greatest importance

to give the patient sleep; combining hyoscinamin with asclepias, acts well. If a slight purging supervene, it must not be hastily stopped. When by any of the above or other means a cessation of the fever is procured, we must put the patient upon a liberal use of tonics, cinchona, iron, hydrastis, &c., directing a nutritious diet, with some alcoholic beverage in moderation; gentle exercise during convalescence.

When the disease arises, the sick should be removed to a clean, well aired room, separate from the other members of the family; the bed linen should be frequently changed, body kept clean, chambers well ventilated, abundance of fresh air.

### TYPHOID FEVER.

This fever is generally ushered in by shooting, throbbing pain in the forehead and occiput, vertigo, dry cough, gradually becoming worse, epistaxis, prostration; these symptoms are followed by a rigor, alternating with heat, and this ending in continuous dry burning heat, temperature of the skin much increased. Pulse accelerated, full, soft, one hundred to one hundred and twenty per minute. Determination of blood to the head, redness of the face, noise in the ears, tongue white, furred, subsequently dry, impaired taste, a sense of pressure over the spleen, no appetite, thirst, constipation or diarrhœa, evacuations of fluid, yellowish or greenish appearance; it may be mixed with flakes of blood, pinching pain in the bowels, often burning pain in the anus; in the third stage there is bloating of the abdomen; pressure causes rumbling there, especially in the region of the colon. In the latter part of the disease, the lip, teeth and tongue are covered with sordes, strength declines, emaciation sets in, and as the disease progresses, nervous symptoms appear, there may be delirium; patient restless at night and stupefied. This uneasiness increases with the delirium, till a state terminating in unconsciousness is arrived at. A characteristic of this form of fever is a sort of purpura on the surface, consisting of small red spots, some of which are elevated; they usually appear on the abdomen, and in some cases extend over the limbs; they vary in depth of color according to the severity of the disease, from a pink to a bluish red. In the latter stages the skin becomes cooler. In some cases the sputa is mixed with streaks of blood.

CAUSES.—Intestinal fever is a contagious disease, having all the characteristics of contagious fevers, such as a latent period of incubation, exemption by one attack from all subsequent attacks. The operation of the poison belonging to this fever is entirely dependent on its own production in the living body—that being the soil in which this specific poison breeds and multiplies, and that most specific of all processes which constitutes the fever itself is the process by which the multiplication is effected. All the emanations of the sick are infectious, but what is thrown off from the intestines is most virulent. The poison that produces typhoid operates not only on the blood but induces special lesions in the solids. It is a specific disease, not infectious, but caused generally by vitiated air containing the emanations

from large bodies of human beings crowded together, aided by mental and bodily fatigue.

The precise nature of those emanations which produce this fever are unknown, impure air, the gases generated from decomposing animal or vegetable substances may cause disease and great depression of the vital powers. Some regard this fever as a consequence of the proximity of wells to privies, the inhalation of decayed matter from which we have blood poisoning and disordered sympathetic nerve force, the skin and glands of the small intestines suffer. Typhoid fever is essentially due to decaying animal matter, and is exceedingly prevalent in all our large cities.

DIAGNOSIS.—The distinction of this fever from typhus is easily defined.

Typhus is essentially a product of overcrowding, from breathing air charged with a large per centage of effete animal matter, thrown off by the lungs and skin of masses of people occupying crowded apartments. The distinctive points are : *typhoid* has no epidemic character, it leaves well defined traces of its existence after death; *whereas typhus* is pre-eminently a blood disease, the poison acting on the blood, leaving no trace of structural change; spreads by contagion. *Epistaxis* is common in *typhoid*, rarely occurs in *typhus*. The hearing is equally affected in both diseases, deafness more or less complete. In *typhoid* the pupils are larger than natural, scarcely any injecting of the conjunctiva; *whereas* in *typhus* the pupils are greatly contracted, conjunctiva intensely injected. In *typhoid* the *tongue* is generally moist; if dry, it is often small, red, glazed, fissured; if brown its hue is less deep, inability to protrude; *whereas* in *typhus* it is covered with thin white mucus early in the disease; less frequently moist throughout the disease, inability to protrude the tongue. The sordes exhibit blood discs from local hemorrhage; are present in both fevers. *Intestinal* hemorrhage is common in *typhoid*, seldom occurs in *typhus*, so is dullness of the lung very rare in *typhoid*, unless the patient has an attack of pneumonia, which is a frequent sequel of *typhoid*, and easily recognised by the dullness on percussion, by the flush on the cheek, dilatation of the nostrils; *whereas* in *typhus* we have dullness of the chest from intense congestion. The eruption disappears on pressure, but returns the moment pressure is removed; *whereas* in *typhus* we have the mulberry rash coming out early, from the third to the seventh day, appearing first on the anterior part of the trunk, in size from three to four lines in diameter, irregular outline, sometimes coalescing and forming large patches; in color, a dusky pink, and the depth of the color is proportionate to the gravity of the fever. Sudamin in both.

In *typhoid* the poison seems to spend its force on the small intestines and mesenteric glands; Peyer's patches and the corresponding mesenteric glands are invariably diseased, the spleen also is softened and greatly enlarged.

PATHOLOGY.—The first morbid change observed in enteric fever is in the intestines, a slight swelling of the mucus membrane covering the glands of Peyer; to this succeeds a deposit of typhus matter, which speedily presents the appearance of a deep brown or yellow sloughy

patch; this in a short time is detached, leaving a cavity or ulcer on the inner surface of the intestines. The seat of the lesion is the lower third of the small intestines, the number and size increasing as they approach the cæcal valve.

The ulcer, if it corresponds to one of Peyer's glands, will be elliptical in form; when it corresponds to a solitary follicle or a round patch, or to the partial detachment of a glandular plexus, it is round; when corresponding to the partial detachment, it is irregular or sinous. In size the ulcer varies from a pea to a silver half dollar. Its base is formed by the delicate layer of sub-mucous tissue which covers the muscular coat.

**TERMINATIONS.**—Mild cases terminate in resolution; in severe cases the ulcers may cicatrize.

The conditions necessary for the favorable healing of the ulcers are: the cessation of the deposition of the typhus matter and complete extinction of typhus dyscrasia, and the sustaining the vital powers to hold up against exhaustion caused by the ulcerative process. If the powers of life are so low that cicatrization does not take, the destructive process of ulceration successively lays bare the mucous, the areolar and muscular coats, until the thin transparent peritonæum remains. When complete perforation takes place, the contents of the intestine escape into the peritoneal cavity and give rise to acute peritonitis. The perforation is small and is found in the centre of the ulcerated patch.

In typhus as well as typhoid fevers the blood becomes altered in its chemical composition. The fibrin is never above the normal standard, but diminishes in proportion to the duration of the disease, the blood corpuscles increase in number, but they are white, have no red color or fibrinous consistence.

**TREATMENT.**—In no disease has the eclectic practitioner been so successful as in this, and their mode of treatment has been simple. In the first place, if the patient is seen early, give him an emetic of C. powder of lobelia, after which let him drink some composition tea; after the emetic has done its work, then thoroughly bathe the patient with the alkaline wash, which should be continued all through the case at least every three hours. If constipation prevails, never, above all things, give a cathartic; purgation in typhoid is ruinous—death to the patient, and has increased the mortality to an alarming extent.

If it is deemed necessary to move the bowels, resort to an enema of tepid water, or give a teaspoonful of neutralizing mixture. The drink of the patient should be beef tea, gum arabic water, or some mucilaginous diuretic. The circulation should be thoroughly controlled with aconite and asclepin, because aconite increases the nervous forces, soothes, and the asclepin keeps the skin moist; at the same time some local application should be kept steadily over the abdomen, either the hop, ley, or some other poultice suited to the indications; it must on no account be weighty. The head must be kept cool, frequently sponged with cold water and the hygiene must be thorough, plenty of fresh air, abundance of wholesome associations. The patient's food should consist of articles that are nutritious, easily digested, soft in



consistence. The articles that are to be preferred are milk punch, beef essence, white of eggs, soft boiled rice, arrowroot, &c., and if the patient can bear it, the food should be persevered with day and night at proper intervals. Nothing is more disastrous to a patient than leaving them all through the night in an exhausting disease without food and medicine. The pulse should be controlled, the extremities must be kept warm, for if this is not accomplished the entire treatment will fail, for if there is deficient capillary circulation in the skin there is a stasis of blood in the internal organs; rubbing the extremities, therefore, with dry mustard or tincture of capsicum three or four times daily, with the constant use of hot bottles of water.

If this treatment is continued the pulse will become natural, excretion and secretion will be promoted; for a diuretic chlorate of potassa may be given in small doses. Having accomplished so much, then remedies to increase innervation should be tried, as cinchona, hydrastis, phosphorus, cypripedin, &c. In typhoid fever I place the greatest reliance upon phosphorus, giving it every four hours, in alternation with a mixture of iron, quinine and hydrastin. If stimulants are demanded, alcohol is our best, in the form of milk punch.

In all diseases the patient must have sleep. That is essential in typhoid particularly; for this purpose we do not like opium in any form; it dries up the secretions. Hyoseiamin, lupulin, cypripedin, ehlorodyne, and if these fail the unction of morphia over the lymphatics of the axilla and groin.

We are sometimes able, by the above or similar treatment, to abort the disease, or at least to mitigate its severity. But if it has progressed some days, and the blood has become seriously affected, we may not be able to arrest it, and then our treatment should be directed to meet the development of low typhoid symptoms.

If there is tenderness over the abdomen some warm stimulating fomentation produces a good effect, as turpentine; if it is necessary to open the bowels from irritation, an enema or the neutralizing mixture, keeping on with the phosphorus and milk punch.

If there is diarrhoea it must be controlled by mild astringents, as the tris-nitrate of bismuth, or turpentine in a solution of gum acacia and peppermint water, or cranesbill fl. extract, or xanthoxilin, rhusin, hamamelin, matieo, and very excellent results are often obtained from a tablespoonful of yeast three or four times daily.

The great prostration of the nervous system should be combated by wine, quinine, stimulants, and the regular administration of beef tea, milk punch and phosphorus. Carbonate of ammonia answers admirably, but its prolonged use is injurious, it drying up the secretions.

In addition to the remedies mentioned for diarrhoea, camphor and nux vomica internally, and enemata of starch, opium and tannin are often of use. I have derived great benefit from the use of nitromuriatic acid, six drops in a wineglassful of water as a drink. To control the septic condition of the blood, ehlorate of potassa, hydrochlorate of ammonia, sulphite of soda, chlorinated soda, yeast, charcoal, baptisin.

If the bowels should become persistently tympanitic, with extensive ulceration, the turpentine and nux vomica may be depended on; for a permanent tonic nothing can exceed the iron by hydrogen, quinine, nux vomica and hydrastin in alternation with phosphorus.

With proper treatment the fever poison would seem to spend itself by a maturing of the ulceration of the bowels about the fifteenth day, and between that and the twenty-second day, although some cases would seem to drag along, in spite of our best efforts, for five or six weeks.

With regard to the use of stimulants in this disease, they cannot be dispensed with; they must be administered with care; the system must not be over-stimulated for fear of prostration; milk punch or wine answers well. The case should be carefully watched, and every indication checked with promptness. As the disease yields, keep up with the treatment energetically. Convalescence should be established with care, nourishing food in small quantities, with stimulants, tonics, pure air, light, &c., and as convalescence becomes established, animal broths with easily digested food should be allowed.

## YELLOW FEVER.

This disease prevails endemically in tropical countries, having a compound origin arising from the effects of animal and vegetable miasm.

Its mode of attack is peculiar, suddenly prostrating, overwhelming the whole system, and thus preventing any reaction of the capillary vessels; in some rare cases it may advance mildly, differing very little from an ordinary attack of remittent fever. In some cases it bears a strong resemblance to a high grade of bilious fever. A great deal depends upon the peculiar circumstances of the patient attacked. If he is from a temperate climate, and unaccustomed to the miasm, he will be more susceptible to the action of the poison than a person acclimatized. It may be true that after a certain period of exposure the system becomes habituated to the action of the poison; they may lose susceptibility to the influence of the poison, but there are other causes which exercise a very important influence, such as persons attempting to live in a yellow fever zone as they would do in a northern latitude. For example: a person living in a cold region, where the atmosphere is highly condensed, requires a large amount of animal food to supply the system with carbon and hydrogen sufficient to resist and neutralize the action of the inspired oxygen. Let the same patient go to the tropics with his body charged with carbon, and continue his animal food and stimulants; let him thus burden his system with carbon, with the elements of nutrition far in excess of the amount of oxygen he has got to consume, and this very condition predisposes to yellow fever. There is a lack of equilibrium between the supply of the amount of food and the oxygen to decompose it.

The inhabitants of tropical countries have but little desire for animal food, but prefer farinaceous diet, vegetables, fruits, thereby securing to themselves a due proportion between the elements assimilated.

lated and the oxygen absorbed; while the inhabitants of the North find it indispensable to consume large quantities of meat, and other articles abounding in the elements of nutrition, to preserve a healthy equilibrium.

**CAUSES.**—The miasma of animal and vegetable matter—matter which has been submitted to intense solar influence, and a certain amount of moisture in the crowded filthy streets of cities, or other confined places, which, under favorable circumstances, will cause yellow fever. Concerning the nature of this miasm nothing is known; but it is very evident, whatever it may be, a high degree of temperature, with confinement of their noxious emanations within the limits of crowded cities, generate the miasma. The predisposing causes are, a too free use of animal food and stimulants, irregular habits, mental anxiety, depression of spirits, fear, grief, exposure to night air or the burning sun, and anything that tends to debilitate.

The nature of the specific poison of yellow fever is still a mystery, although there can be little doubt but that miasma is the grand source of the affection, and when the miasm is so strong, then it is communicable both by infection and contagion.

**SYMPTOMS.**—It is usual to divide this disease into three stages. The *premonitory symptoms* are, lassitude, weariness, chilliness, giddiness, wandering pains in the back and limbs, nausea, headache, frequent sensations of faintness; later, febrile paroxysms, followed by a subsidence of the symptoms; subsequent appearance of jaundice, hemorrhages, irritability of the stomach, dysuria.

The second stage occurs after reaction from the premonitory symptoms; the circulation becomes excited, the face flushes, eyes red, brilliant, injected, pulse from 100 to 130, violent pains in the back, head, loins and extremities, distress of the stomach, vomiting of acid bilious matter, the skin dry, burning hot, mouth and throat dry, intense thirst, sometimes delirium, urine scanty and high colored, tongue covered with a pasty white coat, with red edges and apex, and in some cases mucous or bilious vomiting.

The duration of the *second* stage is about twenty-four hours; it may continue longer, after which there is a complete remission of all the symptoms, except a distressing sensation about the region of the stomach, with nausea and vomiting. The patient may remain in this stage a few hours, even with great comfort, with partial perspiration, when there is a recurrence of all the former symptoms in an aggravated form. The stomach now becomes extremely painful, burning and sensitive; vomiting is violent and incessant; flatulency, thirst, nausea; the fluids ejected are of a darker color; there is often diarrhœa, generally constipation; the skin and eyes acquire a yellow lemon tinge; there is tossing, restlessness, dysuria, and the mind becomes confused and wandering. The pain in the head, back, limbs, &c., are less violent than before, and the pulse, tongue and skin may remain nearly natural, but the case becomes hourly worse, and the fever of a typhoid character.

Then the *third* or last stage sets in. This stage is characterized by greenish-yellow, brownish or claret-colored vomiting—the black vomit

in this stage of the disease—the greatest debility prevails, and symptoms of universal putrefaction arise; large patches of livid spots are to be observed on different parts, the tongue becomes dry and black, the teeth are incrustated with a dark fur, the breath is highly offensive; the whole body exhibits a livid yellow in many cases, but not in all; hemorrhages break forth from the mouth, ears and nostrils; dark and fetid stools are discharged, hiccoughs ensue, the pulse sinks, and death follows very quickly. These are the usual appearances to be met with; but great irregularities have been observed by different practitioners.

**PATHOLOGY.**—The burning of the stomach, tenderness on pressure, exhibit a perverted application of the nervous energies, emanating from the nervous centres, with depraved secretion in the liver and kidneys—there is a stasis of the blood, from back of nerve force—an arrest of secretion. A diseased organ secreting badly or abnormally, in which deteriorated blood stagnates, is not likely to secrete at all. The liver stops its function first, the kidneys last.

The matter vomited prior to the black vomit has no trace of bile. Absorption is still active. The bile exuded from the hepatic cells, stagnates in the bile ducts, is taken up into the circulation, tinging the skin, urine, conjunctiva.

There is a progressive poisoning of the blood in yellow fever as in other zymotic diseases. The virus enters the blood, acts on the great nerve centres and this produces all the train of symptoms.

The hemorrhagic transudation depends upon the want of plasticity and arterialization of the blood and relaxed state of the capillaries, induced by their abnormal innervation. Black vomit is blood chemically modified by the gastric secretions; the vomiting prior to it is intensely acid. The blood is poured out by a kind of *exosmosis*, for the mucous membrane is free from rupture.

The albuminous part of the effused fluid is coagulated into a finely granulated state, compared to coffee grounds, while the coloring matter, already dark by carbonaceous matter, is rendered pitch black by sulphuretted hydrogen and other chemical agents, always present in the intestinal tube. This coffee-ground substance is only found in the intestines, the blood found in other parts resembling molasses.

**TREATMENT.**—If the patient is seen in the early stage, give a stimulating emetic of the third preparation of lobelia, allowing the patient to drink an infusion of capsicum or ginger. Immediately after the action of the emetic give the patient an alcoholic vapor bath—procure a copious perspiration, rub thoroughly dry, giving the patient weak salt and water to drink. Then the following should be given every hour:

R<sub>y</sub>.—Quinine, gr. ii.;  
Chloride of sodium, gr. iii.;  
Capsicum, gr. i.;  
Xanthoxylin, gr. x.—*M*.

At the same time, the most active counter-irritation to the spine, Firminch's method along each side of the spinous processes, and over the process the strongest iodine. Hot sand bags should be placed



inside of the thighs, in the axilla and all around the patient's legs, body, &c. If there is fever, let aconite be the arterial sedative. Sponge the skin frequently with a solution of sulphate of soda, and give the patient sleep with some anodyne. The bowels should be moved by an enema of jalapin, colocynthin and prickly ash.

If the vomiting is incessant, try tablespoonful doses of the following, every ten minutes:

R<sub>x</sub>.—Aqua dest., 0ss.;  
Chloride of sodium, ʒi.;  
Capsicum, gr. xx.—*M*.

If this is not successful, try nux vomica and xanthoxylin with mustard over the stomach. If the cold stage has supervened, camphor is very effectual, but it must be frequently repeated.

Sometimes belladonna and aconite answer well. Nitro-muriatic acid, phosphorus, nux vomica, leptandrin, should be tried for the abdominal pains; if there is great nervousness, hyoseyamin and cypripedin. Lobelia is valuable, given in small but continued doses, if the nausea and vomiting is persistent, sinking at the stomach, prostration. If constipation prevails, try the following and repeat, if necessary:

R<sub>x</sub>.—Podophyllin, gr. i.;  
Euonymin;  
Leptandrin, āā., gr. iii.;  
Bi-tartrate potassa, gr. xxx.—*M*.

Gelseminum, the tincture, in half teaspoonful doses, every two or three hours, is often attended with the most happy results.

If the disease does not yield to any of the above treatment, keep on with the treatment and keep the patient under the following remedies: quinine, salicin, iron by hydrogen, hydrastis, capsicum, &c.

Throughout all the disease, the patient should be supported with beef essence; the strictest attention ought to be paid to cleanliness, ventilation, most thorough hygiene. If the patient can tolerate diet, let it consist of arrow root, ice cream, champagne iced, white of egg. Small quantities of ice at a time, held in the mouth, relieves the thirst.

All through the ease keep up active sponging, and if all remedies seem to fail, putrefaction supervening, depend on capsicum, champagne and cinchona, use them liberally, for, the oftener given, the more likely to be efficacious. These three remedies prove highly serviceable in yellow fever.

## THE ERUPTIVE FEVERS.

The eruptive fevers may be regarded as continued fevers, having an eruption superadded. The diseases of this class are *small pox*, *measles* and *scarlet fever*. These diseases have one common character, as follows: a period of incubation, a certain time elapsing between the hour of infection and the establishment of the fever; they are all accompanied with high febrile action, which runs a defined course; all attended with an eruption, which runs a regular series of changes,

all affecting an individual only once in a life time; all arising from a specific contagion, and their progress cannot be stayed, but their severity may be modified with medicine and good nursing.

### VARIOLA OR SMALL-POX.

Variola or small-pox may be defined as a contagious and infectious fever, commencing with lassitude, headache, stupor, mental depression, rigors, heat of skin, vomiting, pain in the back and loins, and succeeded on the third day by an eruption of pimples, which, in the course of a week inflame and suppurate. In some cases the mucus membrane of the nose and mouth is similarly affected. When the vomiting and pain in the back are violent, it is indicative of a severe form of the disease. It attacks persons of all ages, but children are more liable to it than those of more mature years; it may prevail at all the seasons of the year, but in general is most prevalent in the spring and summer. Small-pox is distinguished into the distinct and confluent; *in* the former the eruptions are separate, distinct from each other; *in* the latter they run into each other; the one mild in its type, the other often accompanied with typhoid symptoms. But species are produced either by breathing air impregnated with the effluvia arising from patients suffering from the disease, or from the introduction of various matters from clothes, contact, &c., and the grade or variety depending altogether on the amount of the poison imbibed, and the state of the constitution of the patient at the time, and on certain contingent circumstances. The area of variolous contagion is limited to a very narrow sphere. The time which elapses from the hour of infection to the establishment of the fever is twelve days, but if the disease is received into the system by inoculation, only seven days elapse between the reception of the virus and the appearance of the fever. There is no contagion so certain, so positive, as that of small-pox; the period when the contagion is most virulent is during the suppurative stage. The susceptibility of the constitution to the action of the poison is exhausted by one attack.

Four different stages are usually observed in small-pox: the *febrile*, *eruptive*, the *maturative*, and the *declination* or scabbing.

If the disease has arisen naturally and is of the distinct species, the eruption is preceded by redness in the eyes, soreness in the throat, pains in the head, back and loins, languor, lassitude, faintness, rigors, alternated with heats, thirst, nausea, vomiting, quick pulse, &c.

In some instances these symptoms prevail in a high degree, and in others they are moderate and trifling. In young children convulsions are apt to occur prior to the appearance of the eruption, which create great alarm.

About the third or fourth day from the development of the acute symptoms, the eruption shows itself in little red spots on the face, neck and breast, and these continue to increase in number and size for three or four days longer, at the end of which time they are to be observed dispersed over several parts of the body.

If the pustules are not very numerous, the febrile symptoms will



disappear on the appearance of the eruption; or, if not, will become moderate. Should the pustules be perfectly distinct and separate from each other, the suppuration will probably be completed about the eighth or ninth day; and they will then be filled with a thick yellow matter; but should they run into each other, it will not be completed until some days later.

If the pustules are very thick and numerous on the face, it is apt to be greatly swollen; the eyelids to be closed up; previous to which there usually arises a hoarseness, difficulty of swallowing, discharge of viscid saliva, &c.

About the eleventh day the swelling of the face usually subsides, together with the affection of the fauces and other parts. The severity of the disease bears a direct relation to the quantity of the eruption. The eruption is papular, which ripens into pustules, suppuration being complete about the tenth or eleventh day; at which time the pustules break, crusts or scabs form; and in four or five days more these begin falling off.

In the *confluent* form, the fever which precedes the eruption is much more violent than in the distinct, being usually attended with greater anxiety, sickness, more intense pain in the back, greater heat, thirst, nausea, vomiting, than in the distinct variety. Coma and delirium are not unfrequent, and in infants, convulsions.

The eruption usually makes its appearance about the third day,—being frequently preceded or attended with a rosy efflorescence, similar to that which takes place in measles; but the fever, although it suffers some slight remission on the striking out of the eruption, does not go off as in the distinct variety; on the contrary, it increases after the fifth or sixth day, and continues considerable throughout the remainder of the disease. As the eruption advances, the vesicles on the face run together, containing a thin brownish ichor; the face is pale and doughy. On the parts not exposed—such as the trunk and extremities—though often not confluent, have no areola, and are pale. The vesicles on the top of the pimples are seen sooner in the confluent than in the distinct; but they never rise to an eminence, being usually flattened in; neither do they arrive at proper suppuration, as the fluid contained in them, instead of becoming yellow, turns to a brown color.

About the tenth or eleventh day, the swelling of the face usually subsides; the hands and feet begin to puff up and swell; and about the same time the vesicles break, and pour out a liquor that forms into brown or black crusts, which, upon falling off, leave deep pits behind, that continue for life; and where the pustules have run into each other, they disfigure and scar the face very considerably. When to the foregoing symptoms, malignancy and putrescency are added, the disease becomes malignant small-pox.

In the confluent small-pox, the fever, which, perhaps, had suffered some slight remission from the time the eruption made its appearance to that of maturation, is often renewed with considerable violence; and this is called the secondary fever; this is the most dangerous stage of the disease.

The only diagnosis that is necessary is between small-pox and

chicken-pox. In the latter, the pustules commonly go back, without coming to suppuration; their number, size, appearance and course differ very essentially.

**PROGNOSIS.**—The distinct small-pox is not attended with danger, except when the eruptive fever is very violent, or when it attacks pregnant females, or approaches more nearly to the confluent. The degree of danger is in proportion to the violence and permanence of the fever, the amount of eruption, the vigor of the vital powers, the disposition to putrescency which prevails. When there is a great tendency this way, the disease usually proves fatal between the eighth and eleventh day; but a fatal termination may be protracted till the fourteenth or sixteenth day.

The more perfect the maturation and filling of the pustules by the fourth day, the less the danger. The more abundant the eruption, the greater the danger; the pustules eliminate the morbid poison existing in the blood, and their proper filling up or maturing is essential to a cure. Delirium, suppression of the various secretions, great hoarseness, a sudden suppression of diarrhœa, when present, are dangerous symptoms. The sloughing of any part, the occurrence of convulsions, of erysipelas, will increase the probability of a fatal termination.

**TREATMENT.**—In the treatment of small-pox and all other eruptive fevers, there are three prominent indications to be attended to. We must equalize the circulation and moderate the fever, when it is violent, by the arterial sedatives, aconite and aselepin, by mild laxatives, as leptandrin and juglandin, by diuretic drinks, by tepid alkaline sponging. We must support the vital powers when they become feeble, by stimulants, by nourishing broths, milk punch, essence of beef. We must combat any complication that may arise, with energy and prudence, bearing in mind that no depleting remedy can be borne by a system already prostrated and overcharged by a debilitating poison.

Distinct small-pox requires but little medical treatment, but the most thorough hygiene; and if the young patient is doing well, little medicine need be given. Consequently, all that is wanted in addition, is a plain, unstimulating diet, a guarded watchfulness of complications, a cool, airy apartment, bed-clothes frequently changed, a regular sponging every two hours, and plenty of water or lemonade to drink. Supposing the case does not proceed as favorably as could be desired, then we must attend to the prominent symptoms.

If the fever run high, we may give aconite and aselepin; give the patient plenty of fresh air; we would continue actively the sponging. As the quantity as well as the quality of the eruption depends much on the violence and duration of the eruptive fevers; and as by mitigating the one we render the other more favorable; and for effecting this desirable end, the above remedies I greatly esteem, more especially the repeated sponging;—it mitigates the headache, the pain in the back, and other febrile symptoms; a slow and gentle perspiration is induced, and a mild eruption is the result. If it is early resorted to, with other appropriate treatment, the febrile symptoms are controlled; elimination is aided, the number of pustules are diminished, the danger of the disease is lessened. The temperature of the patient's chamber should

be such that he may experience no sensation of cold or heat,—comfortable. He should lie on a mattress covered with a few bed-clothes; he should have the apartment to himself, and everything about him should be frequently changed.

I have succeeded well, before beginning any treatment, by giving an emetic of the C. powder of lobelia, and letting the patient drink freely of an infusion of sweet marjoram and the pitcher plant. The pitcher plant undoubtedly exercises a specific action on the virus, and under its exhibition, with proper auxiliary treatment, many cases cannot only be modified, but effectually cut short. Small doses of the sulphate of soda should also be given all through the case, but *Aconite* is the proper medicine during the primary fever. *Belladonna* may be depended on if inflammation or congestion attack the brain; its action is two-fold,—its special action upon the cerebral organs, and its power in retaining the eruption upon the skin. *Camphor* will be found valuable if the eruption strike in suddenly, or if the powers of life are low.

With regard to the use of purgatives, of the very mildest character, and used for the purpose of diminishing excitement in the distinct variety, they may prove serviceable if moderately given, as the neutralizing cordial, juglandin, leptandrin, &c.; but if the case is aggravated or of a typhoid character, they should not be given. Where constipation prevails, enemas of tepid water will answer well. If convulsions occur previous to the appearance of the eruption, then the warm bath, the vapor bath, the administration of the C. tincture of lobelia, with small doses of belladonna will be appropriate treatment, and if it does not yield, friction to the surface with dry mustard, counter-irritation to the spine and extremities and some diaphoretics, as C. tinctures of serpentaria with stramonium. The same remedies, with the addition of carb. ammonia and macrotin, in an infusion of sweet marjoram may be used, if the eruption does not come out kindly, together with nourishment.

I have always found it good practice to allay all irritability and restlessness, either by Dover's powders or hyosciamin. It is well by this mode of treatment to control the febrile symptoms, lessen the action of the heart, allay thirst, and every symptom promptly. If the febrile symptoms continue considerable, and the eruption well developed, the plan of treatment must not be relaxed. If a great degree of cynanche is present, gargles and the inhalation of vapor may be used.

In those cases where the pustules contain a thin watery fluid, and are accompanied with great soreness, uneasiness, loss of strength, prostration, &c., the C. tincture of cinchona should be given in large doses, and persevered with in alternation with milk punch. Even in the confluent variety, where there is a putrid tendency, where the pustules are filled with a thin ichorous fluid, bark and alcoholic stimulants are our sheet-anchor.

If the eruption, after having made its appearance, strike in suddenly, and is attended with weak pulse, a sinking in of the pustules, then a

liberal use of milk punch or wine, with mustard to the extremities and diffusible stimulants, as ammonia, serpentaria, warm bath, &c.

In treating the secondary fever, attend to the bowels; administer sedatives if there is irritability, and if suppuration in the pustules does not go on kindly, nourish well with beef tea, milk punch, eggs, wine or brandy. If the mouth and throat become implicated, mucilaginous drinks and an emetic may be resorted to. Any determination of blood to the head or chest, or other viscera, require the foot bath and counter-irritation. If suppression of urine should occur, an onion poultice over the pubes, and a few doses of the tinctures of gelseminum and cantharides, and if these and other means fail, the catheter should be used. Obstinate, persistent vomiting proves troublesome, and is best relieved by effervescing salines or soda water, or lime water, or a few drops of laudanum and chloroform; locally, counter-irritation over the stomach.

Profuse, exhausting diarrhœa is a troublesome and dangerous symptom, as it produces rapid debility; the safest and best plan is to endeavor to moderate it, by such agents as the neutralizing cordial and cranesbill.

There is little secondary fever in the distinct variety, but a good deal in the confluent; this of course must be carefully treated, chiefly by milk punch, wine, bark, &c. To relieve the itching that is sometimes intolerable, glycerine with camphor, or glycerine, rose water, and subnitrate of bismuth. To prevent pitting, the face should be masked; it should be bathed with tepid milk and water, and on the sixth day a mask should be worn, and the face smeared over with sweet oil, or glycerine and camphor, so as to exclude the external air—a complete covering. There are also a numerous class of remedies given for this purpose, as the pitcher plant, chlorine, puncturing the pustules and brushing them over with the nitrate of silver; gutta percha dissolved in chloroform; the Allopaths, to prevent pitting, use bi-chloride of mercury, as follows:

Ry.—Bi-chloride mercury, gr. 1;  
Aqua dest, ℥viii.—*Mix.*

A teaspoonful every four hours. To increase the efficacy of this they give 2 grains bi-carbonate of soda morning and night; the Homœopaths for the same purpose give tartar emetic:

Ry.—Tartarised, antimony, gr. 1;  
Water, ℥iv.—*Mix.*

A tablespoonful every four hours.

When the pustules are numerous on the face, the eyes often become affected, and a loss of sight is not unfrequent. In those cases some mild astringent wash; glycerine should be used to prevent the lids from adhering, bathing them with milk and water. In all cases the patients strength should be carefully supported by food of a light character and acidulated drinks; a liberal use of alcoholic stimulants is always proper.

In varicella or chicken-pox, the eruption generally commences on



the shoulders and breast, but usually spares the face. There are no constitutional symptoms of importance, it is contagious, runs its course in six days, and requires little treatment aside from hygienic measures.

Vaccination should be performed on all children at the sixth month, and repeated at the age of puberty; in practising this, the lymph should be fresh, taken from a vesicle on the seventh or eighth day, of a healthy child free from any hereditary taint or disease.

### MEASLES.

Measles, a continued, contagious fever, accompanied by an eruption, and frequently attended with inflammation of the mucous membrane of the respiratory organs. The period of incubation varies from ten to fourteen days, during which, there is little disturbance to the general health; a feeling of languor, with slight cough; symptoms of fever and catarrh begin to show themselves, followed by rigors; sneezing a diffusion of thin humors from the eyes and nose; the eyes are suffused, the membrane of the nose, the fauces and the larynx become affected; the eyelids are swollen, intolerance of light, dry hollow cough, hoarseness, dyspnœa, drowsiness, a tendency to delirium, great heat of skin, and frequent and hard pulse. The eruption comes out at the end of the third or beginning of the fourth day of the disease; seldom earlier, often later. It consists of small circular spots, resembling flea-bites, which gradually coalesce into patches; these are of a dull dingy red color, present frequently a crescent shape, and slightly raised above the surface of the skin. The first appearance of the rash is on the forehead and face, and gradually extends downwards; it begins to fade in the seventh day in the same order, and without producing much marked desquamation. The diarrhœa, which sometimes sets in, is for the most part beneficial. The fever does not abate on the appearance of the eruption. The contagion of measles is strong; most powerful during the eruptive stage.

Scarlatina sometimes resembles measles; the redness of scarlet fever is more diffused, and is not in distinct spots, with the natural color of the skin interposed. In measles, the eruption rises above the skin, and occasions a roughness to the touch, which is hardly observable in scarlet fever. In scarlatina there is seldom any cough, the eyes do not water, the eyelids are not red or swollen, all which rarely fail to attend measles. The time of the eruption is also different; for it appears in scarlet fever, both on the face and arms, about the second day, but in measles it begins to be visible about the third day on the chin and breast, and does not come on the arms and hands until the fourth or fifth day.

The measles may prevail at all seasons of the year as an epidemic, but the middle of winter is the time they are usually most prevalent: they attack persons of all ages, but children are most liable to them. Like the small-pox, they never affect a person but once; their contagion is of a specific character. It is like all other diseases, worse in the scrofulous.

PROGNOSIS.—This will depend upon the mildness or severity of the



chest symptoms; the complications are more to be dreaded, such as severe ophthalmia, laryngeal and croup affections, bronchitis or pneumonia, consumption or hectic fever may arise. Pneumonia, diarrhœa, and even dropsy are sometimes the consequences. In some cases the measles make their attack in a mild manner, and go through their natural course without medical aid; but in others, the febrile symptoms run high, particularly after the appearance of the eruption, and are accompanied with a strong pulse, much coughing, great difficulty of breathing, and other symptoms of pneumonia.

**TREATMENT.**—During the whole course of the disease it is proper to attend to all the secretions; and, therefore, if constipation prevails, it should be obviated by administering the neutralizing cordial, or leptandrin and juglandin, or enemas. Should the difficulty of breathing and oppression of the chest be not relieved by aconite, gelsemin and asclepin, in alternation with pulsatilla, or *C. tincture serpentaria* and aconite, then counter-irritation over the chest by capsicum and vinegar, or mustard, often proves valuable.

The entire surface of the patient must be sponged with the warm alkaline wash every two or three hours; this gives great comfort, allays restlessness, promotes convalescence. Exposure to cold must be carefully guarded against. The patient should be confined to bed, the apartment should be darkened, and kept moderately warm.

The cough is usually troublesome, and it is usually necessary to give mucilaginous drinks, mild diaphoretics, as asclepin, gelsemin and lupulin, syrup of poppies, or simple syrup with cypripedin, and any good acidulated drink. In addition, if the cough proves very troublesome, and is attended with great difficulty of breathing, inhaling the vapor of vinegar or stramonium, may prove serviceable. If the febrile symptoms run high, the arterial sedatives, together with attention to the great emunctories, is essential.

When the cough harasses the patient a great deal at night, then the diaphoretic powder at night, or small and repeated doses of a combination of wild cherry, lupulin, lobelia, and hyosciamus in syrup, or infusion of *trillium pendulum*, *asclepias* and hair-cap moss. Opiates, more especially opium, should be administered with great caution, not only in this disease, but in all diseases of an inflammatory character, and should not be given if we have a high grade of fever. Arterial sedation usually affords all the relief required; those valuable remedies, aconite, gelsemin and asclepin, usually allay the fever, relieve the respiration, and keep the secretions relaxed, whereas the reverse takes place with opium. If the diarrhœa prove exhausting, geranin, hamamelin and myricin should be given with the neutralizing cordial; but as an open condition of the bowels proves serviceable, it should not be suppressed unless it is violent.

When the eruption of measles disappears before the proper period, and there is anxiety, delirium, or convulsions occurring, the indication evidently is to restore the eruption. To effect this, immediate recourse must be had to the warm mustard bath, or the vapor bath, the administration of some of the following remedies, either *C. tincture serpentaria*, or *pulsatilla* and aconite, or ammonia and the *C. powder*

of lobelia, will be the best remedies; if there be debility, or any malignant tendency, nourishing broths, wine, milk punch, cinchona, are pre-eminently indicated.

Although we thus inculcate confinement to bed, the avoidance of exposure to cold, and a comfortable room, still the patient should not be loaded with bed-clothes. It is true, thorough hygiene should be enforced. Arterial sedation should be carefully watched; we should bear in mind its tendency; never debilitate in weak habits.

The state of the three great cavities must be carefully watched, especially towards the decline of the eruption, and should any indications arise, they should be met promptly on general principles. After the disappearance of the eruption, it is proper to give some cooling purgative, juglandin and leptandrin; this is worthy of attention, as many troublesome complaints are thereby prevented. After the affliction has entirely subsided, the patient should be warmly clad, and not allowed to go out too early, and convalescence established upon bark, hydrastis, and pyrophosphate of iron.

### SCARLATINA.

Scarlet fever is an infectious and contagious febrile disease, characterized by an extensively diffused bright scarlet efflorescence of the skin, and of the mucous membrane of the fauces and tonsils, commencing about the second day of the fever, and declining about the fifth; it is often accompanied by inflammation of the throat, and sometimes of the sub-maxillary glands. It is essentially a disease of childhood. The average mortality has been great.

It is divided into three kinds or grades, the type depending chiefly on the amount of the poison absorbed, and the vital power of resistance of the patient; when unaccompanied with an ulceration of the throat, and the skin is only affected, it is scarlatina *simple*; when attended with a great deal of throat affection, as well as the skin, it is called scarlatina *anginosa*; and scarlatina *maligna* when all the force of the poison seems to be expended on the throat, when there are symptoms of putrescency present.

It has been disputed whether the poison of scarlet fever, malignant sore throat, and diphtheria are different diseases, or only varieties of the same disease. In my opinion they are the same, operating with different degrees of intensity at peculiar periods, and in different constitutions and temperaments, according to the amount of the poison received. Scarlatina does not always assume precisely the same appearance. This diversity depends on many contingent causes; the nature of the poison, location, season of the year, the temperature of the atmosphere, the mildness or inclemency of the weather, the circumstances in which the patient is placed, the habit and state of constitution, the state of health at the time of the attack, and their situation with reference to hygiene. If the patient has once had the affection, it is not liable to recur. It may attack persons of all ages, but more particularly children.

Scarlatina is of a very contagious character; simple contact, inocu-

lation and inhalation, are the channels by which the infection may be introduced into the body. Undoubtedly the grand avenue of infection is the respiratory mucous membrane. The disorder to which scarlatina bears the greatest resemblance is measles, but from this affection it may be distinguished by the following characteristics:

The efflorescence in scarlatina generally appears on the second day of the fever; in measles, it is seldom very evident until the fourth. It is much more full and spreading in the former disease than in the latter, and consists of innumerable points and specks under the cuticle, intermixed with minute papulæ; in some cases forming continuous, irregular patches; in others, coalescing into an uniform flush over a considerable extent of surface. In measles, the rash is composed of circular dots, partly distinct, partly set in small clusters or patches, and a little elevated, so as to give the sensation of roughness when the fingers are pressed over them. These patches are seldom confluent, but form a number of crescents, with large intervening portions of cuticle, which retain their usual appearance. The color of the rash is always different in the two diseases, being vivid red in scarlatina, but in measles, a dark red.

During the febrile stage, the measles are distinguished by an obstinate harsh cough, by an inflammation of the eyes and eyelids, with great sensibility to light; by an increased discharge from the lachrymal glands, sneezing, &c. Scarlatina is frequently attended with cough, redness in the eyes; the cough in scarlatina is short, irritating, without expectoration; the redness of the eyes is not attended with intolerance of light; the ciliary glands are not affected; and that, although the eyes are shining and watery, they never overflow. In scarlatina there is more anxiety, depression, weakness, adynamia than in measles; in the latter, the symptoms are strongly inflammatory.

The chief distinctions between the simple and the more aggravated form consists in the fever being great, but little difficulty about the throat; the more malignant or aggravated, the greater the fetor of the breath; the fever is more of a typhoid kind. In simple scarlet fever, the skin is of a bright scarlet color, smooth, and always dry and hot; in the more malignant form, it is red, pimply; the pimples being redder than the interstices.

Scarlet fever begins with lassitude, debility, confusion of ideas, chills, shiverings, alternated by fits of heat; the thirst is great, the skin is dry, the patient is restless, anxious, nausea, and perhaps vomiting. The evacuations are usually normal, the pulse feeble but quick, and in some few cases slight affection of the fauces may be perceived.

About the second or third day the scarlet efflorescence appears on the skin, which seldom produces any remission of the fever. On the departure of the efflorescence, which usually continues out for about three or four days, a mild perspiration comes on, the fever subsides, the cuticle falls off in small scales, and the patient regains his health usually rapidly.

At the same time that the efflorescence spreads on the body, the mucous membrane of the mouth, fauces and nostrils also becomes affected. The appearance of the tongue is very characteristic of

scarlatina. At first it is covered with a thick white fur, through which the elongated papillæ project, but as this fur clears away it becomes clean, preternaturally red, of a strawberry appearance. The affection of the mucous membrane of the mouth terminates by resolution, with the disappearance of the febrile symptoms; eight or nine days being the usual period.

In *scarlatina anginosa*, the symptoms are more violent than the preceding; coldness, shivering, languor, debility, sickness, nausea, vomiting of bilious matter, headache, delirium, pungent heat of the skin, marked prostration. About the second day stiffness of the neck, uneasiness of the throat, hoarseness and pain of swallowing. The fauces, palate, uvula and tonsils are red, swollen; the inflamed surface is covered with coagulable lymph. As this inflammation goes on, all the febrile symptoms increase; the skin is very dry and hot. When the efflorescence appears, it brings no relief; on the contrary, the symptoms are aggravated, fresh ones arise. The efflorescence does not observe the same regularity as in the simple form; it does not appear so early, is delayed to the third or fourth day, comes out in patches on the arms and chest, shows a tendency to vanish and reappear. In the progress of the disease, one universal redness pervades the face, body and limbs, which appear somewhat swollen. The eyes and nostrils partake more or less of the redness; and in proportion as the former have an inflamed appearance, so does the tendency to delirium prevail. With the fading of the eruption, about the fifth or sixth day, the fever and inflammation of the throat begins to abate, although the throat often remains sore for a week or ten days after the disappearance of the rash. This variety of fever sometimes assumes a more aggravated form; being accompanied with an acrid discharge from the nostrils and ears, deafness, inflammation of the parotid glands, and suppuration sometimes takes place.

*Malignant* scarlet fever differs but little from the above in its symptoms; the fever soon assumes a malignant or typhoid character, great cerebral disturbances being superadded to the affection of the fauces and skin, great irritability, restlessness, delirium, of a low muttering character. The tongue is dry, brown, tender and chapped; the lips, teeth and gums are covered with sordes; the breath is fetid, the throat is swollen, of a dusky red hue; the tonsils and other parts are covered with incrustations, consisting of exudations of lymph, or in some cases gangrene sets in. The cervical glands are involved in the inflammation. The rash is irregular in its appearance and in its duration; at first it is pale, but soon becomes changed to a dark livid red; petechia also often appears upon the skin. If relief is not prompt, many cases of this malignant form of scarlet fever terminate fatally on the third or fourth day. It is a disease of great danger; great hopes may be entertained if the seventh day be passed.

PROGNOSIS.—Scarlatina in its mild form is not usually attended with danger, but when the system seems saturated with the poison, and partakes much of the nature of malignant, or discovers a putrid tendency, it often proves fatal. The discharge of a highly acrid matter from the nose, diarrhoea, the fauces of a dark red or purple color,



without swelling, ash-colored or brown specks, soon becoming ulcerated, great prostration of strength, delirium, coma, anxious difficulty of breathing, petechia, sordes, &c., are very unfavorable symptoms.

**TREATMENT.**—If called in in the onset of the disease, when the skin is dry and hot, pulse much accelerated, coated tongue, the best thing we can do is to give the patient first an emetic of the C. powder of lobelia; *then* follow with the alcoholic vapor bath; *then* put the patient to bed in a well-ventilated apartment; have him sponge the entire surface, every two hours, with the warm alkaline wash; open the bowels with an enema of tepid water; then place the patient upon aconite and belladonna, sufficient to keep the pulse about seventy-five, and alternate this with chlorate of potassæ in syrup.

An emetic should never be omitted, and even a repetition of it is often the means of preventing complications. After the emetic, it is always well to cleanse the alimentary tract; purgatives should be carefully avoided. After the bowels have been once unloaded, arterial sedatives are specially demanded; the head should be kept cool, and if there are symptoms of delirium, belladonna and stramonium are the remedies. If symptoms of depression or collapse appear, wine, ammonia, capsicum and nourishing food should be ordered. Plain cold or tepid water to the throat is better than capsicum and vinegar. If the aconite fail in maintaining moisture on the skin, in promoting elimination of the poison, then combine it with aselepin, or the C. tincture of serpentaria, or an infusion of some diaphoretic tea.

Throughout the whole course of the disease, if there is either inflammation or ulceration of the throat, it will be proper to make use of some detergent gargle. When the throat is much affected, capsicum and vinegar applied, and kept on till some degree of irritation is produced. When the fauces are in a sloughy state, a warm fomentation of nitric acid, highly diluted with a stimulating gargle of tincture capsicum and myrrh, will prove highly serviceable. To give the patient sleep is all important and essential; for this, hyosciamin in a little camphor water, or lupulin with minute doses of gelsemin and belladonna. Opium is never indicated; it proves injurious.

In those cases of scarlet fever which show a disposition to malignancy or putrescency, it is always advisable to give cinchona in substance, decoction or infusion, with the mineral acids, or the permanganate or chlorate of potassa. Chlorine is often useful, so is pyroligneous acid, baptisin. In this grade, a stimulating plan of treatment is the best; the vital powers are so prostrated that unless we support them by the free administration of brandy, wine and bark, agents which are calculated to prevent a metamorphosis, which, if not given, the vital powers would fail. I like the carbonate of ammonia given in alternation with the above; it is very beneficial in this disease.

My usual plan of treatment of this disease is simple, simply eliminative and supporting, meeting the indications promptly and efficiently. When the fever has abated, cinchona, hydrastin, iron, pyrophosphate, phosphoric acid, stimulants, with nourishing diet, pure air, and gentle exercise will greatly accelerate the recovery of the patient.



Scarlatina being a very contagious disease, and never failing to excite the greatest consternation and anxiety, it should be our aim to annihilate the powers of contagion; we may employ fumigations of chlorine and bromine.

In regard to prevention; it is obvious that an improvement of the diet in those who live low, moderate exercise in the open air, and, in short, they should do everything to promote the building up of the vital powers, thorough hygiene, cleanliness and ventilation. Those in attendance should avoid, as much as possible, the inhalation of the breath or emanations of the sick, as scarlatina is most frequently received in this way.

SEQUELÆ.—Children who suffer from this fever are liable to certain consequences—permanent affections, as ophthalmia, enlargement of the cervical glands, &c.; but the most common, and the most serious, is an affection of the kidneys, with anasarca, characterized by cloudy, scanty, albuminous urine, general serous infiltration of the large serous cavities. This sequel is most common after a mild attack, owing to a want of caution which is observed in such cases. The patient may expose himself to the action of the cold; the exposure arrests the functions of the skin; the scarlatinal poison, which was being eliminated by the cutaneous excretion, is thrown back into the circulation; the kidneys are called upon to do the work—eliminate that material which the skin has been rendered incapable of doing—but the contaminated blood is sent to them in larger quantities than they can bear. The same blood is intensely serous, white-cell; it overwhelms them, and hence we have inflammation of the kidneys.

*Acute desquamative nephritis* is best treated by *rest* to the kidneys, and purifying the blood by other channels; for this purpose rest in bed, in a warm room, good diet, consisting of the elements of blood, the vapor bath daily, the diaphoretic powder, given with podophyllin, jalapin, and B. tartrate of potassa, free purgation, and a judicious use of such remedies as digitalis, iodide potassa, iron.

During the presence of this dropsy children are very apt to suffer from cedema of the lungs. The symptoms in the commencement are those of bronchitis, but at the end of two or three days the breathing becomes hurried, dyspnœa, violent action of the heart, feeble pulse. The only relief consists in free purging, the vapor bath, lobelia emetic, and frequently repeated doses of the eupurpurin.

## PART II.

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### DISEASES OF THE BLOOD.

THE blood is subject to variations both in quantity, quality and consistency.

It may be superabundant, consisting either of an excessive quantity of the vital fluid, or a superabundance of the red globules; the quantity remaining unchanged, while in quality it becomes over-rich. The fibrin is also increased. It is a condition which is indicated by distension of the capillaries, as may be observed on the cheek, lips and mucous membranes; by a full, strong, resistant pulse, and a turgid appearance of the veins; and this state is known as plethora or *hyperæmia*. If we have blood existing in too great abundance in any particular organ or tissue, we have local congestion. The causes of plethora are free living, and at the same time not a corresponding waste of tissue, inactive modes of life, sedentary habits, &c.

The *treatment* of general plethora must consist in a restricted diet, the active employment of both mind and body, open air exercise, lessening the hours of sleep, in the avoidance of alcoholic drinks. Small doses of podophyllin, in alternation with either the acetate or liquor potassa, is frequently found an efficacious remedy.

### ANÆMIA.

Deficiency of blood arises generally where the system has been deprived of the proper materials for the formation of healthy blood, as in exhausting disease.

The chief varieties of anæmia, which are caused by tuberculosis, amyloid enervation, fatty degeneration, &c., are spoken of under their respective heads.

The existence of a certain proportion of iron is essential to the perfection of the blood in supporting and stimulating the various organs to perform their proper action. The quantity of iron is smaller in women and children than in men; and women are more subject to anæmia.

**SYMPTOMS.**—The prominent symptoms of anæmia are a pale, waxy, blanched appearance of the skin, as well as the lips, tongue and inside of the mouth; small, feeble pulse; loss of appetite, low spirits, debility and languor. Any exertion is attended with a sense of sinking, fainting or syncope; hurried breathing and palpitation; œdema of the ankles, and frequently albuminuria, or an escape of blood by the kidneys.

On placing the ear over the jugular vein, especially of the right side, a continuous humming or cooing, or even whistling sound is heard; a systolic, bruit or bellows-sound will also be detected at the base of the heart.

TREATMENT.—When anæmia arises from recent hemorrhages, or other debilitating causes, it may be remedied by *iron, cinchona, nuxvomica, phosphoric acid, &c.*

Begin treatment with iron, wine or milk punch, fluid nourishment, good nourishing food, open air exercise, salt-water sponging.

If it depends on too severe mental occupation, phosphorus and iron, with good diet. It is a well known fact that overwork of brain produces deterioration of the blood as certainly and as positively as too prolonged muscular action, or insufficient nourishment.

Iron is the proper remedy in all anæmic cases dependent on an impoverished state of the blood; as a general rule, the pyrophosphate or prussiate of iron will answer well.

### PIARRHÆMIA.

Milkeness of the serum or fatty blood is met with, under certain circumstances, in disease. Its physical causes are free fat and molecular albumen. Piarrhæmia is a physiological result of digestion, pregnancy, lactation, &c., and consists in an excess of saponifiable fat in the blood, and not in the mere liberation of fat from its combinations. The excess of fat probably depends on the excessive ingestion of fat during digestion, and diminished elimination of the same. The apparent relation to albuminuria, seems to point to some organic change in the constitution of the plasma of the blood itself.

### GLUCOHÆMIA.

The excretions of sugar by the kidney constitutes a disease known as diabetes mellitus, which has attracted considerable attention.

Without going into details, we would merely say that abnormal states of the circulation and of the blood lead to the production of sugar; certain altered conditions of the nervous system also occasion a formation of saccharine matter in the body, and injury to certain parts of the sympathetic rapidly produces a strongly diabetic state, while the introduction of carbonate of soda largely into the circulation prevents this effect. The treatment of this subject is taken up more fully in another part of this work.

### URÆMIA.

One of the principal depurating secretions by which the normal integrity of the blood is maintained is the urine. When, from any cause, the functions of the kidneys become impaired or suppressed, urea is no longer eliminated by these organs; consequently it accumulates in the blood, producing that morbid condition known as uræmia.

The term uræmic intoxication is employed to denote the peculiar kind of poisoning which is supposed to result from the accumulation of urea in the blood, and the transformation of this salt into carbonate of ammonia. The direct effects of the absorption of urea are seen in a disturbed action of the two great nerve centres—the brain and spinal cord.

The conditions under which it most commonly occurs are: disease of the kidneys, bladder and urethra, and anything which impedes the action of the kidneys.

The symptoms of uræmic poisoning the breath and perspiration are ammoniacal. The mucous membranes of the mouth are dry and shining, complexion sallow, increasing emaciation, causing stupor, shortness of breathing, sometimes convulsions.

Uræmic convulsions are to be distinguished from fits due to epilepsy, &c., by the following points: The urine is highly albuminous, scanty, of a low specific gravity; the peculiar appearance of the skin, œdema of the face and extremities, pupil fixed and dilated, breath ammoniacal.

TREATMENT.—If uræmic poisoning is threatened, we must make an effort to purify the blood by means of those excretory channels, the skin and intestinal canal; sweating should be induced by the vapor bath, or by wrapping the patient up in the wet sheet; by sponging the body frequently with tepid vinegar. If there is an excessive tissue waste, the citrate of quinine and iron appears to be a useful remedy. Digitalis and benzoic acid diminish the elimination of urea. The acetate and phosphate of soda, as well as of colchicum, act in a similar manner. On the other hand, we have several remedies which increase it, cubebs, horse radish and belladonna. If we wish to diminish the urea by means of the diet, all that is necessary is to administer arrow-root, sago, &c., and other such starchy foods, well sweetened with sugar, and when a more nourishing food than this is demanded, cream, cod liver oil. If we want to increase it, animal soups, eggs, milk, jellies and coffee.

To act on the bowels, the best purgative is podophyllin and jalapin drinks, acidulated with nitro-muriatic acid or lemon juice.

### ACHOLIA.

In acute atrophy, obstruction of the bile duct, cirrhosis, fatty degeneration and other diseases of the liver, we are very apt to have an arrest of function and symptoms of blood poisoning, terminating quickly and fatally.

Bile is not an element of the blood, though generated by transmutation of certain matters in the liver—a disorganization of the cells of the liver from any cause; an arrest of the function of that gland from any cause leads to acholia.

Acholia, or deficiency, or absence of bile is not to be confounded with jaundice, a condition where bile exists in the blood owing to re-absorption after having been generated by the liver. In the one



affection we have retained in the blood those substances by the metamorphosis of which bile is productive; in the other, the blood contains the bile itself.

Abnormal conditions of the nervous system are the essential symptoms in these cases; excitement, delirium, convulsions, typhoid, prostration, coma. Sometimes hemorrhage from the mucous membrane of the stomach and intestines, petechia, ecchymosis, of the skin, jaundice.

The treatment must consist in the use of purgatives, podophyllin, leptandrin, jalapin, nitro-muriatic acid, &c.

### ICHORRHÆMIA.

This affection is known as pyæmia,—a morbid condition of the blood, caused by the introduction into it of putrid matters; which state generally displays its effects by producing severe constitutional disturbance, as well as by inducing suppuration in certain important organs. This condition is particularly dreaded after parturition, and surgical operations. This affection exhibits itself in various ways. In some cases the patient seems to be so powerfully affected, that he dies before any local phenomena can be developed. In another class, the intensity of the poison seems to be exerted upon the liver, or mucous membrane of the alimentary canal; while in other cases, nature makes an effort at elimination by the abundant discharge of bile, or by diarrhœa, or dysentery; while in still a rarer class of cases the poison spends itself upon the serous membranes, and we may have pleurisy, pericarditis, or peritonitis; or the skin may be the part affected, and we may have erysipelas or boils; while in still another class, we may have profuse suppuration occurring, giving rise to metastatic abscess in the lungs, liver, joints and eyes.

Under this head may be ranked diffuse inflammation of the cellular tissue, the poison of animals, bites of venomous reptiles, blood poisoning from dead subjects. The prognosis is highly unfavorable, especially when the patient has been lowered by exhausting disease, insufficient food, and unhealthy abode.

TREATMENT.—The grand aim in treatment is to sustain the vital powers, and purify the blood. In such cases our chief dependence should be placed in stimulants—brandy and beef tea. Elimination of the poison by the skin, kidneys and bowels, should be attempted. Baths of water medicated with nitro-muriatic acids daily, free purgation by podophyllin, leptandrin and baptisin, free diuresis, with eupatorin-per, and giving such remedies as C. syr. stillingia, with quinine, yeast, permanganate of potash, iron sulphites, hypophosphates, &c. Pain must be relieved by chlorodine, or some powerful anodyne. If the patient gets over the acute stage, milk punch, essence of beef, fresh air, thorough hygiene, iron and quinine, cinchona and hydrastis, and if abscess threatens, free incisions, otherwise the treatment must be upon general principles.



## HYPERINOSIS.

There can be no doubt that when the blood contains an excess of fibrin, that there is very apt to form fibrinous formations in the heart, arteries, veins, in the cerebral sinuses, &c. The formation seems to be particularly favored by the condition of the blood during pregnancy and the puerperal state.

The fibrinous masses may form suddenly, and at once cause death by obstructing the circulation; or they may arise gradually and produce symptoms which creep on insidiously and last a long time. Sometimes solid fibrinous masses, carried away from the heart, are arrested in the vessels of the brain, spleen or kidneys, and form a foundation on which a concretion may be deposited.

**SYMPTOMS.**—The symptoms caused by a fibrinous deposit in the heart are well marked, whatever may be the disease from which the patient is suffering at the time. The nature of the symptoms varies as the concretion is deposited on the right or left side of the heart. If the obstruction is on the right side, the return of blood from the systemic veins is prevented; and as the flow of blood to the lung for aeration is impeded, so arterial blood is not properly supplied to the brain. Death in these cases happens from syncope rather than from asphyxia. We often see patients prostrated by acute disease, and also parturient women, who die suddenly from the slightest exertion, and the fatal termination has been referred to fainting, when it is probable the real cause may have been the blocking up of one of the cardiac orifices, or of the pulmonary artery by a mass of fibrin.

If a fibrinous clot obstructs the circulation by its situation in the left cavity of the heart, or in the aorta, death, if it occurs, takes place either suddenly, or at the end of a few hours, from coma, and not from syncope. The symptoms then are violent action of the heart, great congestion of the lungs, with dyspnoea of a suffocating character, expectoration of a bloody and frothy mucus, a leaden hue of the surface, coldness of the extremities, but the symptoms are very various.

The effects which have been found to ensue from a fibrinous deposit, carried through the circulation, and depositing itself in the brain, will probably end in softening of that organ, and in hemiplegia, or it may be due to the plugging up of the middle cerebral artery. We may have, also, paralysis, and loss of motion in the arm, from obstruction of the brachial and ulnar arteries; the same in the extremities from fibrinous deposit in the femoral; we may have disease of the kidney, spleen, liver, lungs, from the same cause.

**TREATMENT.**—The object in treatment is to keep the patient alive by proper support, and to effect the solution of the deposit by means of alkalies which are resolvent, and dissolve nitrogenous tissue. Alkalies, and, indeed, most of the alkaloids, have the peculiar effect of rendering the blood more fluid—the power of dissolving the fibrinous formations. The sesqui-carbonate of ammonia, freely diluted, is an invaluable remedy for rendering these fibrinous clots fluid, besides, it excites the heart and circulation and muscular system. This remedy

may be combined with an infusion of gold thread, or cinchona. The patient should be kept perfectly quiet, should have abundance of fresh air; and the diet should consist of essence of beef, raw eggs, brandy and milk. All the mineral acids and agents that favor coagulation of the blood should be avoided.

Convalescence will be slow, but a judicious use of alkaline remedies will eventually cure, with good auxiliary treatment, to meet all indications.

### LEUCOCYTHEMIA.

This is a condition of the system which is essentially anæmic, where the blood displays an excess of white corpuscles. It may be due to various causes, all associated with exhaustion, as excessive hemorrhages, wasting diseases, excessive work, nervous exhaustion. It attacks all ages and sexes. Certain diseases give rise to it, as malarial fevers, diphtheria, glandular affections, &c., &c.

*Its characteristic symptoms* are, a pale tongue, like a piece of raw veal, moist, tremulous; muscular system powerless; countenance pale; lips blanched, &c., &c.

This condition is usually rectified and cured by small doses of phosphorus, iron, nitro-muriatic acid, vegetable tonics, thorough hygiene, open air exercise, and as much good elaborating food as the stomach can digest.

The treatment must be energetic, always giving such remedies as will build up and repair an exhausted vital fluid. It must also be continued for a long time, in order thoroughly to overcome the defect.

### PURPURA.

This name is applied to an efflorescence, consisting of small distinct purple specks and patches, attended by general debility, but with no fever. The efflorescence depends upon an extravasation of blood from the fine vessels under the cuticle. Purpura is a disease connected with a dissolved and thin condition of the blood; yet it is also more than probable that weakness of the vessels themselves, from defective nutrition of their walls, has a still larger share in the result; the symmetrical distribution of the ecchymosis proving the correctness of this supposition.

Purpura occurs in persons who have a constitutional tendency to hemorrhages, from all the surfaces covered by delicate epithelium, as well as from the skin; they are therefore subject to large losses of blood, which are often rapidly fatal. Sometimes the hemorrhage is periodic, and may occur from any part.

The morbid condition, whatever it may be, renders the red blood-corpuscles capable of disintegration, and liable to effusion. Purpura is characterized by the occurrence of sanguineous effusions in different tissues of the body, producing red or claret-colored patches, which are unaffected by pressure. When the hemorrhagic spots are very small, they are termed petechiæ; when large, ecchymosis.

**CAUSES.**—These are obscure. Insufficient food, poverty; any exhausting disease, as degeneration of the liver and spleen, Bright's disease; intemperance. Anything capable of depressing the vital forces; depressing influences.

**SYMPTOMS.**—The appearance of the disease is preceded by lassitude, faintness, pains in the limbs, debility, depression of spirits, feeble pulse; there is heat and flushing of the surface; perspirations, fever; and when the disease has continued some time, there is sallow skin, emaciated appearance. The duration of the disease is in some cases limited to a few days; in other cases it may continue for months. It occurs at all periods of life.

**DIAGNOSIS.**—The characteristic appearance of the skin is peculiar; petechia, or purple spots of large size, or ecchymosis, appearing on the legs, thighs, arms; the hands and face are seldom marked. On their first appearance, the spots are of a bright red color; but they soon become purple or livid; and when about to disappear, they change to a brown or yellowish hue.

**TREATMENT.**—When it occurs in patients who suffer from confinement or imperfect diet, the treatment should be commenced by improving the diet and prescribing change of air, a pure atmosphere, exercise, and improved hygiene; and then the patient should be put upon such remedies as iron, cinchona, nitro-muriatic acid, gallic acid, turpentine. The use of nitro-muriatic acid in alternation with the tincture of larch-bark, is attended with the best results. All through the case the patient should persevere with tonics and hygiene, and every indication should be promptly met as it arises.

## DIPHTHERIA.

Diphtheria is a zymotic disease. Its characteristic symptoms are the product of blood poisoning, and its primary cause is to be sought for in a specific virus which vitiates and depraves the blood, and through it the structure and function of certain solids. The introduction of this virus into the blood is chiefly through the respiration.

**SYMPTOMS.**—In the most common mode of attack the patient is seized with violent vomiting, of a thin yellowish-white matter, of a very offensive character; then purging of the fluid of similar appearance and smell. These dejections last for an hour or more, and are followed by great prostration and stupor. The patient lies for many hours in a heavy sleep, is with difficulty aroused, and immediately sleeps again. The skin is hot, the pulse ranging from one hundred to one hundred and fifty, tongue bright red, great thirst; drink taken with avidity, to be instantly rejected by vomiting; sometimes the purging does not occur.

The odor of the breath is characteristic, peculiarly offensive; the throat is sore, the tonsils, soft palate, back of the pharynx presents a bright red shining appearance. Exuding from the velum and surrounding parts is seen a tenacious fluid. These symptoms will last a few hours, then the condition of the patient is changed, the stupor passes off, and the delirium supercedes it; there is high fever, rapid breathing, the voice thick or shrill, short dry cough; the symptoms are

croupy, neck flabby, flushed, tongue coated with white fur; the back part of the throat, which was at first so red, is thickly coated with a whitish substance in spots, which rapidly conglomerate and form one thick plastic deposit, which frequently covers the whole palate.

The violent delirium now subsides, the powers of life fail rapidly, sensations of suffocation supervene, the patient tears at his neck with his nails and tries to open the mouth, livid spots appear on the extremities, showing purpura; offensive, incessant diarrhœa sets in; muttering delirium, &c., close the scene. Diphtheria is characterized by the peculiar wash-leather exudation, fetid discharge from the nostrils, phagedenic ulceration of tongue, gums and fauces, profound general adynamia.

DIAGNOSIS.—The essential feature of the disease is the exudation of an albuminous or coagulable effusion on the mucous surface of the fauces and air passages. This effusion commences on the tonsils and pharynx and extends downwards to the larynx. The specific poison is a depressing toxic agent, acting directly on the nervous system, and usually attacks the weak, who have defective vitality. It is common in all ages. In diphtheria the effusion seems incapable of organization; a patient may have several attacks, and may have a rash or eruption, but this is never a prominent feature of the disease, and may be altogether absent. In some cases, also, there may be no false membrane, death occurring before it has time to form.

Dropsy after this disease is rare; paralysis or loss of nerve power common. Albumen is absent in the urine generally; the membrane of the throat eliminates the albumen.

The diphtheritic poison has two especial affinities; one for the nerve centres, the other for the mucous structures; these affinities are always recognized. Indeed, these are the conspicuous and characteristic features of the disease.

Diphtheritic deposits are morbid plastic products which are deposited upon the mucous membrane by exudation from the blood. This plastic product is of a grayish or yellowish hue.

The great immediate prostration, the excess of heat, the rapid pulse, the type of the fever, the dilated pupil, the complete anæsthesia, impairment of muscular motion, &c., clearly show that the great nerve centres of animal and organic life are profoundly disturbed.

TREATMENT.—The indications of treatment here are very marked, to wit: reduce the rapidity of the circulation; improve innervation; obtain secretion; counteract the septic tendency of the disease.

To fulfil the first indication, the arterial sedatives, aconite and veratrum, given with asclepin, should be resorted to, and given so as to keep the pulse about seventy-five, and keep up the action of the remedy to keep it at that point. Sponge rigidly with the alkaline wash, enforce most thorough hygiene, and put the patient upon iron and quinine for the purpose of neutralizing the septic poison. With this simple treatment, if the case is seen early, I am often successful. The iron and quinine formula is

R<sub>y</sub>.—Tinct. ferri chloride, ʒi.;  
Quinine sul. gr. xx.—*M*.



Twenty drops in water every three hours. The first point to be attained is sedation, then secretion; and as a general rule no remedies need be tried until sedation with secretion is obtained. If there were indications for an emetic and cathartic give them, but if not, do not disturb the alimentary canal. As soon, then, as we have accomplished the first indication in treatment, give the iron, quinine, or hydrastin to obtain better innervation and meet the other indications as they arise.

From the commencement, beef essence, milk punch or port wine and beef tea should be judiciously administered, to support the strength and counteract the typhoid tendency of the disease. If exudation is about to take place, paint the affected part every four hours with the tincture ferri chloride, or if this cannot be done, give small doses of the bi-chromate of potassa, and allow the patient to inhale the vapor of ammonia water; these remedies will often destroy or detach the albuminous exudation and thus relieve the sense of impending suffocation, and add to the comfort and safety of the patient.

In addition, gargles are advantageous, and of all remedies suited for this purpose capsicum stands unrivalled. The extraordinary power of this remedy to control capillary circulation, to bring excess of blood, and thence to scatter more than it has brought, enables us to remove congestions and reduce swellings very effectually; for this purpose tincture of capsicum et myrrh; hydrastis and chlorate of potassa may be combined, or some efficient astringent may be added.

Locally, I have used bromine, sesqui-carbonate potassa, but with no good results; but we must not rely upon these applications, but strike the cause and seat of the poison in the blood by the proper remedies. Never use counter-irritation near or at the throat, a plain tepid pack is convenient, covering it over with oiled silk.

Acidulated drinks of nitric acid should be given, for there is no remedy more capable of meeting the disease than this. It is an active remedy, and here well calculated to tone and build up. In addition to the general and local treatment, see that the patient obtains soothing sleep, for which purpose, opium or chlorodyne should be given.

If there is an extension of the disease to the larynx, manifested by stridulous respiration, cough, difficulty of breathing, gasping, retching or obstinate vomiting of tenacious matter, the tinctures of lobelia and sanguinaria are specially indicated, and they should be given liberally if the necessity exists. The treatment should be based on the pathology of the disease.

**THE CONSTITUTIONAL TREATMENT.**—*For the febrile symptoms*, sponging, aconite, veratrum, asclepin. *For cerebral disorder*, phosphorus, nux, iron, quinine, diet, hygiene; *locally to the throat*, muriated tincture of iron, ammonia, chlorate potassa, capsicum, nitric acid. *For the debility* and paralysis, phosphorus, nux, iron, cinchona, galvanism, and all through the case a stimulating and nutritious diet is demanded, beef essence, milk punch, animal broths.

As a sequel of this disease, we have a white cell condition of the blood, consequently every organ and tissue in the body is insufficiently



nourished—the vital force is impaired or weakened, and paralysis and other nerve affections are not uncommon.

To combat this condition of things such tonics as iron, cinchona, phosphorus, with fresh air, thorough hygiene, good diet, and everything calculated to improve nutrition, should be adopted.

### SCURVY.

This disease is characterized by extreme debility, complexion pale and bloated, spongy gums, livid spots on the skin, breath offensive, œdematous swellings of the legs, hemorrhages, foul ulcers, urine fetid, stools extremely offensive.

**PATHOLOGY.**—The blood of scorbutic patients is deficient in red corpuscles and superabounds in fibrin. The most common post mortem appearances are: the abdominal viscera deficient in blood, extravasations of blood into the subcutaneous cellular tissue. Other patients exhibit extreme anemia, projecting ulcerated gums, ecchymosis on the surface of the dependent parts. Nodes, exudations of fibrin, &c.

It is supposed that the absence of potash in the food is the cause of the disease. The conclusions established with reference to this are as follows: That potash is deficient in scorbutic diet; all bodies proved to be anti-scorbutic, including fresh meat and vegetables, milk, lemon juice, &c., contain a large amount of potash; that in scurvy the blood is deficient in potash; that scorbutic patients recover rapidly when a few grains of potash are added to their food. The salts of potash, as the nitrate, chlorate, &c., are well known anti-scorbutics. The deficiency of potash in the system seems capable of explaining the symptoms of the disease, especially muscular weakness.

**GENERAL SYMPTOMS.**—The appetite in scurvy is usually good, alvine evacuations are often normal, but offensive. The urine is often healthy. The patient is liable to be sleepless, on account of the anemia of the brain, the intellect unimpaired. If the case is bad the pulse is rapid, heat of skin, febrile excitement and perspiration at night, symptoms which indicate fibrinous effusion. In the mild cases the skin is dry and harsh, emaciation not extreme.

**DIAGNOSIS.**—The expression of the features of the patient is extremely suggestive in disease; in *phthisis* the brilliant eye, the pale or hectic flushed face might reveal the disease; in Bright's disease, the puffed, waxy aspect of the victim are strongly suggestive; in pneumonia, the flushed cheek, dilated nostrils are significant; in *bilious fever*, the yellow sclerotic is sufficiently diagnostic; leucocythemia is seen in the aspect of the patient; ague stamps its impression on its victim as is witnessed by the exhausted look, sallow anæmic complexion, and *scurvy*, too, has its peculiar characteristic appearance.

The face of the patient reveals deficiency as well as depraved blood; the smooth contracted brow, the passive nostril, the parted or compressed lips, the dull or brilliant eye, dilated pupil, bloodless lips. The skin is sallow, dingy, earthy or dirty; the countenance devoid of expression, in severe cases expressing a sense of dread; the gums are

spongy, projecting between the teeth, much inclined to bleed; their color varies from a deep red to a livid blue or black; anæmic appearance of the tongue, lips, cheeks; the teeth are often loosened by ulceration and sloughing of the gums. The smell of the breath is highly offensive, peculiar to the disease, but nearly resembling the odor of putrefactive animal substance. The sloughing state of the gums when present aggravates the odor.

When the disease is once established, the patient will be found lying on his back, his head depressed, in such a position as the weakened heart can best do its work, and if the patient perform any little exertion, as rising in the erect position, he will fall into a faint from which he rarely recovers. A tendency to fatal syncope is a striking feature of scurvy, owing to the bloodless condition of the brain. The surface of the body gives evidence of the diseased condition of the blood in the exudation of its constituents; the blood discs, the fibrin and serum. The colored corpuscles are extravasated in the form of small hemorrhagic purpuric spots, from a small point to a large pea, of a bright claret color, or larger bruise-like stains, commonly found on the lower extremities, variable in size. Plastic exudations on different parts with a board-like hardness are essential symptoms. Passive hemorrhage from the nose, mouth or intestines frequently occur.

PROGNOSIS.—This is usually favorable.

TREATMENT.—The first and primary indications in treatment is the restoration to the food of the elements, the deficiency of which has caused the disease. This is accomplished by a diet of fresh animal and vegetable food, but more particularly the latter, consisting of garden and watercresses, mustard, horse-radish, common radish, scurvy-grass, celery, endive and lettuces, all of which may be eaten in their crude state, together with spinach, beets, carrots, turnips, cabbages, cauliflowers, brocoli, asparagus, the young shoots of hops, &c., which may be prepared by any common process of cookery. To these may be added, a free use of ripe fruits, especially those of a subacid kind, such as oranges, lemons and others of this class. For ordinary drink the patient may use milk or its productions, as whey, butter milk, &c., or else an infusion of malt or spruce. One of the most effectual of this kind has been found to be lemon juice, with which most ships on a long voyage are now supplied. Where fresh vegetables are not to be obtained we ought to have recourse to this. To render its effects more certain, and prevent it from irritating the bowels, we should mix it with a sufficient quantity of water and sugar, which will make a pleasant drink usually known under the name of sherbert. If a due proportion of wine is added, it will render it still more antiseptic. The quantity of juice used during the first three or four days, ought not to exceed two ounces daily, but it may afterwards be increased to three or four per diem.

LEMON JUICE is one of the standard remedies for the disease by a large number of physicians; others propose to cure by means of potatoes, while some give the salts of potash, others sulphur, phospho-

rus, &c., but the treatment by lemon juice acts by restoring the potash salts demanded in perfect diet.

Men, when compelled to subsist for a long period almost exclusively upon animal food, become diseased from imperfect nutrition, the diseases taking always some of the forms of scurvy.

CITRIC ACID is now a well established remedy for scurvy.

LIME JUICE.—Lime juice, oranges, milk, potatoes, vegetable soup; if anæmia is great a recumbent position must be strictly maintained, as there is great risk. Proper diet and rest are perfectly adequate to the cure of the worst forms of the disease.

CHLORATE OF POTASH.—This cures sponginess of the gums, but has little effect over the disease, although it is most valuable in mercurial ptyalism.

CARBONATE OF AMMONIA is highly esteemed by some.

In addition to the dietetic treatment demanded by all scorbutic patients, on which our reliance must be chiefly based, the following remedies will be found appropriate to combat certain symptoms. *Nitro-muriatic acid, cinchona, iron, sulphur, phosphoric acid, hydrazotin, rhus radican.* It must always be borne in mind that health demands a varied diet, and that a too rigid abstinence from fruit, and fresh meat, as well as from vegetables, may occasion the disease.

## INFLAMMATION.

Inflammation is not a disease, it is rather the process by which nature repairs local injuries, and must be considered as essentially restorative in its action—a renewing of tissue.

SYMPTOMS.—Going practically into the subject, the so-called signs, or symptoms of inflammation, are *pain, redness, heat and swelling.*

Redness is not only owing to more blood being in the part, but to that blood being richer in red corpuscles, by the exudations of serum. When inflammation is acute, the redness is of a bright, scarlet color; when chronic, it is of a dark venous hue, and in certain specific inflammations, it is of different hues. In ordinary inflammations, it is generally diffused, and lost in the adjacent structures; while in some particular forms it is abrupt and circumscribed. There are several terms employed to express the varieties, degrees, and appearance of the redness; *ramiform*, when seated in the small arteries and veins only, and not in the capillaries; *capilliform*, when all the arteries are injected, as in erysipelas; *punctiform*, when occurring in little dots, as when the villi of the mucous membrane are infected; *maculiform*, when the blood is either accumulated or else extravasated at certain points; this usually accompanies hemorrhagic inflammation. Permanency is a characteristic of inflammatory redness. The redness of blushing is not indicative of inflammation.

Pain is partly caused by the pressure upon the nerves of the inflamed part, partly by distension and stretching of the nerves by the engorged blood vessel. The tenderness or soreness shows that the sensibility of the nerves is heightened or altered. Pain differs in its character and intensity according to the cause producing it, and the

part which is affected. If the inflammation is in the skin, there is burning and tingling; throbbing in the cellular tissue; sharp and lancinating in the pleura; a mere sense of heat and soreness in the bronchial mucous membrane, and extremely dull and oppressive in a part supplied with ganglionic nerves, as the stomach or testicle. It is less severe if the products of inflammation can readily escape, than if they are confined, and comparatively slight if the part inflamed be yielding and extensible, but most severe if it be hard or dense, like bone and ligament. Pain may be sympathetic, and referred to a part at a distance; in coxalgia, the pain is at the knee; in disease of the liver, in the shoulder; in disease of the kidneys, at the orifice of the urethra; or pain may be entirely absent, as when inflammation occurs in a healthy constitution, and merely produces adhesion; or when the patient is so perfectly treated, that an adhesive stage is only arrived at; or when the patient's physical and mental sensibilities are blunted by intoxicating drinks; or when the nervous system is stupified by disease, as in uræmic poisoning, when the brain is incapable of receiving and responding to impression made upon sentient surfaces, or when the part inflamed is deprived of its nervous sensation.

The *heat* of inflammation is supposed to depend upon more rapid oxidation of the tissues, which are also supplied with an increased quantity of blood. This heat is partly actual, partly the result of perverted nutrition.

Swelling or congestion is caused by the increased quantity of blood sent to the part, and subsequently by the effusion of serum, lymph and pus.

Inflammation is capable of altering all the mechanical qualities of parts, increase of weight, hardness and every kind of alteration in structure.

**MORBID ANATOMY OF INFLAMMATION.**—The usual post-mortem appearances of inflammation, are redness, softening, swelling, infiltration, with serum. But even these are liable to be, or may disappear after death; it may be redness from congestion which existed during life. It may be simulated by certain appearances produced after death.

Redness, if very slight, may disappear from inflamed skin after death, but if the blood-vessels were injected, the vascularity will be found increased, the part will often be softened, and slightly infiltrated with serum; the epidermis peels off more readily than usual. Redness may have been caused during life, not by inflammation, but by congestion from an obstacle to the return of the blood; congestion may also be attended with softening, serous effusion, so that it cannot be distinguished at all from inflammation, and in others not with certainty. The general features of distinction are, that in congestion the larger veins are distended more than the capillaries, which is the reverse in inflammation; in congestion the blood is usually of a darker hue than in inflammation.

The diagnosis will also be aided by observing whether there is any cause of obstruction in the venous circulation. The redness of



inflammation may require to be distinguished from certain other appearances produced after death, and these may be produced:

1st. By the action of the capillaries, which continues after the heart has ceased, so that the arteries are emptied, and the blood accumulated in various internal organs, especially the posterior portion of the lungs and spleen.

2d. By gravitation, by which the most depending parts of the body are always more or less congested.

3d. By transudation of the serum and coloring matter through the coats of the vessels in incipient putrefaction, which is a frequent cause of red spots and stains on internal surfaces, and of collections of bloody serum in various cavities.

EFFECTS AND TERMINATIONS.—Generally speaking, there are but two terminations, convalescence or death.

RESOLUTION AND MORTIFICATION.—The only true termination is *resolution* or recovery; this is the genuine end, the inflammatory action subsiding, the part returning to its former state, but besides this favorable end, it may have either of the *six* following *terminations, effects or consequences*. *Hemorrhage*, an escape or flow of blood from the distended vessels; *effusion* of serum; *effusion* of fibrin or coagulated lymph, when organized produces adhesions; *suppuration*, the formation of a fluid called pus; *ulceration*, the disappearance or removal of the inflamed part; *mortification*, or death of the part.

Resolution is the most favorable, most legitimate result. It is the restoration of the part, both as regards structure and function, to its original, normal state. Effusion takes place, the vessels are relieved, the red corpuscles move on, absorption takes place, and the usual symptoms subside. We may have delitescence, or the sudden disappearance of inflammation, or we may sometimes have metastasis. Excessive deposits, either of serum or fibrin, which has exuded through the coats of the vessels. When serum is effused into the cellular tissue, it constitutes *œdema*, which is characterized by pitting on pressure; when effused and collected in the serous membranes, it constitutes dropsy. The effusion of fibrin requires a higher degree of inflammation, upon the subsidence of which new structures are formed by the organization of the fibrin, and parts are repaired; hence the term plastic or reparatory process is applied to it. Suppuration is the formation of a fluid called pus; it is laudable when it is yellow, creamy, opaque. When pus is thin and acrid, it is called *ichor*, consisting mostly of serum. In scrofulous persons, it is flakey. When it contains blood, it is called *sanies*. When it is of a leaden color, thick, coagulated, and very offensive, it is called *sordes*, a bloody exudation. Sometimes it is mixed with a subtle virus, as the vaccine or venereal; it is then designated *specific*. When mixed in the mucous or serous discharges, it is termed *sero-purulent*, or *mucopurulent*. When suppuration is profuse, long continued, in a debilitated person, it produces the type of fever described as hectic; if pus is absorbed, pyæmia.

Ulceration is due to a vital softening of a texture changed by in-



inflammation and suppuration, becoming disintegrated and fluid; partly absorbed, and partly passing away with the pus, the more violent the inflammation, the more rapid the detraction. The term phagedenic is applied to those ulcerations, in which the part is apparently eaten or consumed with unusual rapidity.

Congestion is a predisposing cause of ulceration. The skin, mucous membranes and cellular tissue, yield more rapidly in ulceration, than the vascular, nervous and fibrous tissues. Those of intemperate habits and of scrofulous or syphilitic taint, are most liable to its ravages. The parts most likely to be affected, are those whose circulation is weak and languid, such as the lower extremities, and parts newly formed, such as cicatrices, tumors, &c.

*Mortification* includes the dying and death of a part from injury or disease. Gangrene denotes the process of dying, and may be recognized by the following signs: redness is changed into a livid hue; circulation is arrested; so is effusion, and there is less tension; pain and heat abate suddenly. Putrescence commences, and there is a putrefactive odor. Phlyctenæ or vesicles, filled with putrid serum appear over the skin. Sphacelus is the completion of the gangrene. The part is cold, insensible, shrunken, soft and flaccid; crepitates distinctly, owing to its containing gas, the result of putrefaction; vital action has ceased, and the parts become black. A slough is a small sphacelation.

Nature always makes an effort to throw off an injurious mass—a foreign body. The living part in contact with the dead inflames, and in consequence, the abrupt livid line is bordered by a diffused red and painful swelling, the line of demarcation; this vesicates, the vessel bursts, puriform matter is discharged, and an inflamed and ulcerating surface is disclosed, the line of separation. The furrow deepens, skin and cellular tissue yield first, the tendons and arteries resisting for some time. No hemorrhage occurs during the gradual division of the parts, the arteries are sealed by the effusion of fibrin during the inflammation. But where the mortification is rapid, as in acute hospital gangrene, hemorrhage is not uncommon. The constitutional symptoms are of a typhoid character. The cause of mortification is a want of vital power, and may be the result of violent inflammation, mechanical injury, pressure, heat, obstructions to the return of the venous blood, deprivation of nervous energy, interruption of arterial supply, as by aneurism, cold, general debility.

**THEORIES OF INFLAMMATION.**—It is impossible to take up our space by even giving a synopsis of the various theories on inflammation. The old writers attributed it to a viscosity of the blood; some to an obstruction of the capillaries, others to spasm of the extreme vessels; others to increased action, or debility or paralysis. In opposition to those who held these dogmas, we have other writers who endeavor to show it is not mere blood-vessels which are the parts affected, and lay down as their theory, that a sense of injury felt by organic nerves is the point in discussion—a theory not without its practical results, since it is very certain, that inflammation after an injury is mitigated or controlled, or prevented by measures calculated

to soothe or allay all sense of irritation. Another theory is, that inflammation is not a disorder in any one element of the tissues alone, neither in the blood, blood-vessels, nerves, nor lymphatics, nor yet that it was a change purely physical, or chemical or nervous, but that the tissues are involved as a living whole, and all their properties simultaneously.

We have also the German theory, that in inflammation there is an unnaturally rapid oxydation of the inflamed tissues. This is no doubt true, although it does not embrace the whole truth.

If we consider for a moment the relation which the living tissues and the blood-vessels have to each other in health, we shall acquire a more correct idea of the share which they take respectively in inflammation. The blood-vessels are but carriers; the arteries bring oxygen from the lungs to excite the different functions, and to dissolve and destroy tissues that have played their part and done their work, and are now become effete. They also bring new material, invigorating material, out of which the various tissues of the body are being constantly rebuilt; out of which every constituent of the body is attracted. They are not, as it has been the custom to term them, the agents of organization, the builders of the tissues.

*Wherever in health, the vital forces are most active, there most blood is conveyed.* Apply this view in a case of inflammation; we are at once compelled to admit that its seat is not mere vessels or nerve, but the living tissue, the organic cell. That the tissue, which in its normal condition, attracts out of the adjacent blood-vessels the necessary materials for its own life and growth; if its vitality be interfered with by injury, by poison, by heat or cold, or any other source of disease, sets up a series of actions, of which the attraction of a considerable quantity of arterial blood is one of the most conspicuous; and that if there be a breach of continuity to be repaired, the tissue attracts from the vessel some of the liquor sanguinis, which forms a blastema or plastic material, in which new organic cells are developed, and become a living tissue, by which the injury is repaired.

The adhesion of a wound, and the reparation of a fracture, are common examples. Under favorable circumstances, then, inflammation is a salutary effort of nature at reparation. That under less favorable circumstances, whether from the amount of injury inflicted, or from want of vital powers in the cell, or from a defective state of the plastic material; from over-stimulation, or other causes, the plasma begets within itself a kind of cell, incapable of life or development, which is known as pus corpuscle. That under still more unfavorable circumstances, the tissues, after a violent struggle, perish and mortify.

**FORMS OF INFLAMMATION.**—By most writers, inflammation is divided into healthy and morbid. The former term is applied to that which takes place in healthy constitutions, when a part of the organism is impaired, being salutary, healthy and restorative in its action and tendency, only injurious if excessive or misplaced, and usually concentrated toward one point. The unhealthy or morbid is essentially destructive; has little or no tendency to recovery, and is liable to be diffused widely. Again: others divide it into common and specific:

the common arising from ordinary causes acting on healthy constitutions; the specific arising from some inherent unsoundness or debility of constitution. It may also be divided with propriety into acute and chronic; the acute being sudden in its seizure, violent in its action, rapid in its progress; the chronic being less violent, more tardy in its action. Acute inflammation is sometimes called active, and the term passive is applied to chronic inflammation in weak constitutions. Again: some classify it according to local effects; thus we speak of adhesive, suppurative, hemorrhagic, ulcerative and gangrenous inflammation.

**MODIFICATIONS.**—Inflammation is always modified by the state of the constitution in which it occurs,—being active and rapid in the young and healthy, but more indolent, and having a destructive tendency in the aged and debilitated. It also produces every variety of phenomena and modification, according to the cause producing it; and it is sometimes greatly influenced by the condition of the atmosphere and the constitution in which it is developed. It is further modified by the structures of the parts which it invades; for it has a greater tendency to produce certain effects in some structures than others.

Thus inflammation in cartilage tends to ulceration and destruction of the joint or bone with which it is connected. In serous cavities and cellular tissue, parts which have no natural outlet, it is more disposed to adhesion than suppuration. Again: in the mucous membrane, it tends to produce suppuration before adhesion, because suppuration is but a trifling evil compared with the danger that would ensue if the mucous canals were closed with adhesive matter from any slight inflammation to which they are perpetually subject.

The structure affected exerts a marked influence in modifying the inflammation. Inflammation of the cellular tissue is favorably situated for effusion, after which absorption and consequent resolution can be effected. When it is not, suppuration follows, constituting an abscess.

Inflamed glands resemble the cellular structure in tendency to swell; but they are more apt to suppurate; and in chronic cases, to harden. In the skin, inflammation tends to spread, and, by its effusion, separate the cuticle, producing vesication.

In the fibrous structures, the characteristic effusion is gelatinous, within which bony matter is liable to be formed. They are also liable to be thickened and indurated.

Tendons and ligaments are not very susceptible to inflammation; but the synovial membranes connected with them, are very liable to take on inflammation, and advance to the suppurative stage. If they do not, the substance of the ligament thickens, and the joint is greatly enlarged.

**PREDISPOSING CAUSES.**—They are both local and constitutional. The constitutional predisposing causes are plethora, sanguine temperament, excessive food, drink, bodily exertion, exposure to noxious miasma, disorder of the liver, kidneys, skin and other organs, whose office is to purify the blood. When inflammation arises from these causes alone, it is said to be spontaneous, or idiopathic, or constitutional. The local exciting causes are chiefly over-stimulation or exer-



tion beyond its natural functions, previous disease, injuries and original weakness of organization.

**EXCITING CAUSES.**—The exciting causes may be divided into two classes :

Those which act essentially on the structure of a part: as mechanical and chemical injuries of all sorts.

Those which act essentially on its functions and vital endowments, as over-exertion, and such poisons as affect living structures.

The former class act directly, the latter indirectly. The one also acts immediately, whilst the other may take some time to produce their effects. Again: causes may be common or specific; the one being that which we daily meet with, and acts on all constitutions; the other, unable to affect all constitutions, being peculiar in origin, producing a modified inflammation, with a specific train of consequences.

**DIAGNOSIS.**—Inflammation does not consist of mere vascular action, nor yet of pain, although it is attended by both these symptoms. How, then, is it to be distinguished from increased accumulation of blood or hyperæmia, and from various kinds of non-inflammatory pain.

Congestion signifies an accumulation of blood in the part, which may be caused by some mechanical obstacle to its return through the veins, or by weakness and atony. It is a very frequent sequel of inflammation. It produces more or less pain or weight, with disturbance of function, especially of secretion; but it does not cause fever, like acute inflammation; nor interstitial deposit, like chronic, though it may terminate in either. A determination of blood consists in a dilatation and expansion of the capillaries, whereby more blood is attracted to a part, and circulates in it more rapidly. It is a process necessary to many natural actions. If morbid, it causes excitement, functional derangement.

Pain, not of an inflammatory character, may depend on spasms, cramp, nervous irritation, or neuralgia and that peculiar pain which is peculiar in hysterical subjects.

The pain of nervous irritation may be distinguished from that of inflammation by its coming on and disappearing suddenly without any apparent cause; by being often relieved by measures that would aggravate inflammation; by the severity of the pain being out of all proportion to the heat, redness, swelling, if they exist, and by the circumstance that although the pain may last for weeks or months, no local disorganization or suppuration follows. Adhesive inflammation is the most favorable mode of the process, being the stage that should be aimed at in all surgical affections, in wounds, amputations and the like, which can be obtained by the pulse regulated at eighty, and the injured part kept at a normal temperature by irrigation and the like. This is the favorable state in which union by the first intention is attained, when a wound heals without suppuration, without any new formation, or without leaving a cicatrix. The term is applied to the process of union between the divided and other surfaces already inflamed, and also to the coalescence of tissues by fibrinous matter.

**GENERAL REMARKS ON INFLAMMATION.**—The process of inflammation is healthy, salutary, not one of disease; its legitimate tendencies

are towards health; *acute* and *chronic*, acute inflammation, sudden in its origin, violent in its action, rapid in its termination, and attended with fever, which is modified by the extent of the inflammation; by its affecting parts of great sensibility and importance, or by a highly irritable state of the constitution. Chronic inflammation is slow in its progress, and tends to last long or even indefinitely. Its consequences may be adhesion, thickening, induration, ulceration or suppuration.

**TREATMENT OF ACUTE INFLAMMATION.**—In the correct treatment of this affection, the indications are, to reduce the increased action of the heart and arteries, and diminish the quantity of arterial blood sent to the inflamed part; to allay pain and nervous excitement, and to restore the secretions, &c.

The primary indication is to equalize the circulation by reducing the increased action of the heart and arteries; for this purpose the first and most important remedy we shall notice is aconite. The improvement following the administration of aconite is often very speedy. Great alleviation of pain usually being experienced in a few hours after it has been commenced with; whilst there are few cases in which decided relief, with abatement of the redness, tension, tenderness, pain, &c., is not experienced in a few hours. If the inflammation is severe, a longer period is requisite before its effects are visible or manifest. Aconite not only affects and regulates the circulation in a shorter time than any other remedy, but appears to possess the great negative advantage of not producing unpleasant symptoms. It would seem rather to protect the patient from any and all dangerous complications. It may be argued that as aconite, long continued, enfeebles the heart, that it predisposes that organ to suffer in the same way as blood-letting; but this distinction must be borne in mind, that aconite acts as a *pure sedative* to the vascular and nervous systems; whereas, blood-letting has a peculiar effect in drawing off the vital fluid, in increasing the irritability of the heart. Aconite, if properly administered, affords rapid relief to the patient's sufferings—it restrains the inflammatory action within proper bounds. The general condition of the patient will improve, diaphoresis will be excited, and healthy action will be promoted.

The difficulty of preparing the pure alkaloid, its high price, its utter unreliability, &c., prevents its more general use. Preparations of inferior quality, totally inert, are sometimes substituted for it; a circumstance which fully accounts for the low estimate in which it is held by the profession. The tincture of the leaves will be found, however, to be an excellent substitute. The practical inferences of the American profession, which are deduced from a multiplicity of observations, from an extensive consideration of the action of aconite on the circulation, are as follows:

That it is a powerful antiphlogistic.

That it is calculated to be of great value in all cases where there is an inordinate activity of the circulation, and if valuable alone, it is more highly so when combined with veratrum, gelsemin, &c.

**VERATRUM VIRIDE.**—This is an important remedy, and if administered in full doses, and pushed far enough, will induce almost a state



of suspended circulation. There are few remedies by which the heart's actions can be more easily, more readily, and more positively controlled, than by *veratrum*. It is a valuable remedy where there is high arterial excitement, and makes an excellent combination with *aconite* or *gelsemin*.

**GELSEMIN.**—This is one of the most positive remedies in the *Materia Medica*; it has decided advantages, and is particularly indicated in acute and chronic inflammation, where the sensorium is free. This has been a well tested remedy in the hands of the reformed profession; it is capable of subduing all fevers, even the most formidable of our country and climate. In inflammation it will quiet nervous irritability and excitement, and equalize the circulation; it will rectify the various secretions, promote perspiration, and is adapted to all stages of the affection, and may be given after any other preceding treatment. It is contra-indicated if there is any disease of the heart or great debility. In full doses, it is a narcotic of a most powerful and peculiar kind, as exhibited by loss of muscular power, clouded vision, double sight, and inability to open the eyes; but if the medicine is here discontinued, these effects pass off in a few hours, leaving the patient comfortable and well.

As a general rule, these arterial sedatives, *aconite*, *veratrum*, *gelsemin*, should not be resorted to indiscriminately, nor should they be pushed to their utmost limits. There are some things that must be taken into account in the administrations of these special sedatives.

The patient's strength, state of constitution, the nature or amount of the injury, or exciting causes.

With regard to the state of the constitution, special sedatives are best borne, act more decidedly, when the temperament is sanguine; when the muscles are large and firm; when the vital forces are vigorous, and the circulation strong, as indicated by redness of the face and lips, and by a full, hard and frequent pulse—use *veratrum*.

When the complexion is anemic, pulse quick, small, feeble, the lips conjunctiva, and tongue pale, general weakness, give *aconite*.

The best effects of these remedies are to be obtained by giving them in small doses, frequently repeated, and diluted largely with water, or an infusion of *aselepias*. Great care must be used, so that the vital powers are not depressed.

Besides these remedies, we have others which aid in equalizing the circulation, either by producing a great discharge of certain secretions, or by some specific lowering agency, independent of any evacuation. There are certain measures to be adopted generally, of paramount importance. Among these, bathing or sponging the entire surface is indispensable, more so than most remedies in restoring a balance of the circulation.

Bathing the general surface with the alkaline wash twice or three times daily, operates like a charm; sedation is aided, and diaphoretics being given, keep up the activity of the cutaneous emunctories.

It is good practice to administer a cathartic, which will act, either by producing a great discharge of certain secretions, or by some

specific agency, independent of any evacuation, such as a copious serous discharge, is sometimes indicated by the state of the blood.

Cathartics are admissible at the commencement of all cases, except when they would cause irritation or disturbance of a diseased or wounded part, as a compound fracture, and, as a rule, those should be selected which excite free secretion from the liver and intestines, and which will rapidly evacuate them, such as the compound powder of podophyllum, or a simple combination of the podophyllin and bitartrate of potassa, in the proportion of half a grain of the former to half a drachm of the latter, will be found a good cholagogue purgative; but as this is slow in its effects, colocynthin or jalapin or leptandrin should be added, to suit the peculiarities of the case.

Podophyllin, given in this way, reduces the heart's action, restores the secretions, and excites absorption of diseased products; it may be used with advantage in both species of inflammation, although it is specially indicated in idiopathic inflammation of serous structures, with a tendency to adhesion. Never use podophyllin alone; give it in combination with some agency calculated to modify its action. But there are certain cases which forbid the use of any cathartic, and then unirritating diuretics and mild diaphoretics should be freely used; combinations that are both anodyne, diuretic and diaphoretic, such as the comp. tinct. serpentaria, asclepin, &c.

Another very excellent means of equalizing the circulation, of restraining the excitability of the system, after the action of a cathartic, or even where the bowels have not been moved, is by the exhibition of *nauseant and emetics*. The agents given for the purpose, like those operating on the bowels, should not produce irritation or inflammation; neither should they be given so as to leave permanent prostration. Lobelia, administered in small doses, with double the quantity of the bi-carbonate of soda, is a most potent, valuable remedy, not so much as to cause vomiting, but just enough to exert its sedative action. The common tincture may be given in small doses; keep the patient slightly nauseated, just below the vomiting point, for ten or twelve hours, drinking freely of some warm diaphoretic tea. This long-continued nausea is the most powerful means of keeping up a determination to the surface, and in connection with proper external applications, procures a copious perspiration. The remedy has a peculiar sedative or anodyne and soothing effect.

Besides the sponging to the general surface, other revulsive means are to be used; the feet and legs should be bathed in hot water and well rubbed. Applications may be made over the abdomen, and the whole course of the spine, dry cups to, or stimulating liniments, followed by mustard, or a plaster of capsicum and vinegar, when the nature of the case or the constitutional state of the patient does not contra-indicate. Stimulants may sometimes be beneficially applied to the whole surface of the body. All these means tend powerfully to determine to the surface and from any inflamed part.

Besides this, there are other means, simple and easy of application, and, perhaps, all things considered, the most efficacious of any in promoting a flow of blood to the extremities and general surface.

**THE ALCOHOLIC VAPOR BATH.**—It may not always be practicable, or necessary, to use this measure; but when other means fail, it should never be neglected, and it should be used more frequently than it is. A moment's consideration will satisfy even the most skeptical of its wonderful power in relieving local and internal congestion or inflammation; experience more than confirms all that has ever been dreamed of the intrinsic value of this therapeutic agent. By the stimulus of the vapor of alcohol, heat as well of moisture, the superficial vessels become and remain for an indefinite time distended with fluid, containing five or six times their average supply, although the perspiration is all the time flowing profusely and diminishing rapidly the volume of the circulating fluids. By supplying the patient with plenty of cold water, this general drain could be kept up for some time without any sensation of faintness.

An erect posture, sitting in a chair, is best. The patient should gratify any thirst that may exist. This diminishes the volume of the circulating fluids, it attracts away from the part in danger to the most extensive and variable tissue in the system. The whole superficial part of the vascular system remains to repletion for several hours after the operation. It is not only revulsive, but a rubefacient, counter-irritant to the surface of the whole body.

The warm bath, where it can be conveniently used, is of great value, but it generally stimulates before it soothes, consequently it must be preceded by evacuations if the habit be plethoric. The proper temperature is 97° Fahrenheit, and it should be continued long enough to produce complete relaxation.

**SEDATIVES AND ANODYNES.**—Those remedies reduce fever and inflammation, by acting on the nervous system without increasing the secretions. Aconite, veratrum, gelsemin, hyosciamus, cypripedin, digitalin, Indian hemp are all of unquestionable utility in soothing inflammatory pain, and more so where we have great irritability. Give the patient sleep. Opium, or its preparations, is contra-indicated in all forms of inflammation, because it dries up secretions; it increases vascular excitement, and is very inappropriately given in inflammation. But it sometimes may be given without reserve in inflammations occurring in very debilitated habits, especially in peritoneal inflammations from perforation of the intestine. Diet in inflammation should, as a general rule, be of the least stimulating nature. But, although water gruel and barley water may suffice for the allopath, this starving should not be indulged in; the patient should be supported, his strength must be maintained, by all judicious means; mild, bland nourishment, beef essence, milk punch, and even wine, is necessary.

**REGIMEN.**—There must be a total avoidance of everything that would irritate both mind and body. Perfect rest in the recumbent position, or in any position that is comfortable and easy, cool, fresh air, free ventilation, strict cleanliness; the exclusion of light and sound, with mental consolation, to allay doubts and fears, and inspire resignation and cheerfulness, are most potent aids in the medical treatment, which, without them, would often be utterly fruitless.

**LOCAL TREATMENT.**—In the local treatment of inflammation, the



first thing to be done is to remove all exciting causes if possible; to keep the part at perfect rest and in an elevated posture, so as to favor the return of blood from it, and then the indications are to diminish the morbid heat and afflux of blood, and to allay irritation and pain. Local treatment may do much, especially in the early stages of inflammation.

Before proceeding to strictly topical applications, we might mention compression as a means of preventing the establishment of inflammation. This may be successfully resorted to in a large number of cases affecting the extremities, provided it be thought of early, before any organic change occurs. It is best performed by a roller from the extended limb upwards.\*

IRRIGATION, by means of cold water, acts by depressing the vital force of the part, and by inducing contraction of the muscular fibres. When it is thought desirable, it may readily be employed by means of an ordinary filtering apparatus, so that it keeps dropping on the part. This is one of the very best methods of arresting inflammation in a part. Measures must be taken to guard the patient against the moisture, &c.

Cold applications are of use to diminish heat; to cause contraction of the capillaries; but they should be applied continuously, otherwise the pain will be aggravated when the heat returns. In some severe cases, frigorific mixtures may be applied in bladders, with the greatest caution, for if suddenly applied and removed, the reaction may increase the heat and excitement; and, if long continued, it proves too depressing.

FOMENTATIONS are often of great efficacy, as hops or chamomile flowers; or a very excellent one, lobelia and eupatorium or Roman wormwood; the latter should be used green, if possible, bruised and covered with warm vinegar. Cloths wrung out of a warm alkaline solution, laid on the part, produce very beneficial results in recent inflammation, and do not cause irritation.

Sassafras, inula helenium, polygonum punctatum, belladonna, are all valuable for fomenting with, prepared with vinegar.

As to whether fomentations should be warm or cold is a matter of dispute. Sometimes cold adds to irritation, and it may be, that in that case, tepid applications are preferable, for they do not stimulate like heat, nor occasion painful reaction, like cold, and are more directly sedative than either. Warm fomentations are useful by relaxing the skin, soothing pain and promoting perspiration, and are especially indicated in inflammations of dense tendinous parts. It is a good rule in practice to consult the patient's sensations in the matter. The most rigid attention must be paid to the indispensable necessity of producing an agreeable state of feeling in the inflamed parts, as a means of relieving that sense of irritation in the organic nerves, which is one of the most vital indications in inflammations.

STIMULANT AND ASTRINGENT solutions are of great value in some

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\* Pressure, if resorted to, must be equal and continuous; it must have for its object the removal of the exciting causes, making them contract to their natural calibre; exercising the part in its natural functions, so that it may gradually resume the actions and sensations of health.

cases, exerting a very powerful influence; thus, a simple decoction of white oak bark, made strong and applied by wetting cloths, or a bran poultice, are useful in effecting the resolution of very severe cases of inflammation.

A most valuable remedy in recent injuries, both for prevention and discussion of the inflammation, is the arnica.

THE TINCTURE OF ARNICA has a reputation which is excelled by no other drug, and when we suspect ecchymosis to exist, no remedy is so valuable. There is a variety of other agents which grow in this country abundantly, equally as good as the arnica, such as the hypericum—per-foratum or St. John's Wort; the cynoglossum officinale, or hound's tongue.

The results of the above agents are very similar.

Counter-irritation, when the inflammation is deep-seated or internal, should never be neglected. The principal measures of this kind are sinapisms, strong stimulating lotions, dry cupping, irrigation, &c. Incisions may be useful.

If, however, the case has progressed too far to yield to discutient means, our next aim is to promote suppuration as quickly as possible. Of all poultices the slippery elm, for all kinds of inflammation, is certainly the best; there is nothing in the materia medica that will bear any comparison with it. The powdered bark, mixed with rain water, milk, lye water, to the consistence of a poultice, and applied either cold, tepid or warm, whichever is most soothing to the patient. Sometimes it is advantageous to mix it with other ingredients, as catnip, baptisin, lobelia, to suit the peculiar character or stage of the disease. Flaxseed is the next best; marsh-mallow with milk, forms an excellent emollient; for an anodyne, lobelia and elm, or chamomile flowers, &c.

GENERAL OBSERVATIONS.—If the patient is of full habit, with full, hard pulse, and has been indulging freely in alcoholic stimulants, and has unimpaired digestive organs, so that blood is too rapidly formed, the diet should be restricted chiefly to vegetable substances, free, fresh air, the bowels, skin and kidneys acted freely upon by podophyllin and colocynthin in alternation with the nitrate of potassæ, and then a course of alteratives should be commenced in order to increase the secretions, relieve the system of its superabundant material and the avoidance of old habits. Alkalies are especially indicated in plethoric patients, with scanty, red and acid urine. But if we have inflammation in an enfeebled and irritable constitution, it must be met with beef essence, milk punch, eggs, nutritious liberal diet; wine, tonics should also be administered to improve digestion, to impart tone to the constitution; irritation and pain must in all cases be allayed by sedatives, and the secretion of the bowels be maintained by the mildest laxatives. If the tongue is coated, red at its tip and edges, and there is heartburn, flatulence, pain in the stomach after meals, and other signs of a weak and irritable stomach, the diet should be plain, bland, easily digested, small doses of alkalies may be given after meals, a tonic before them, and the bowels must be regulated with the neutralizing cordial and leptandrin. If there is sal-



lowness, clay colored stools, euonymin, leptandrin and podophyllin are indicated.

In the administration of iron and bark, it is good practice to have a proper action of the liver and bowels, otherwise headache, feverishness and a general irritability may supervene; in these cases, euonymin and juglandin are especially indicated. In all cases of serious disease, we would inculcate the most careful nursing, and attention both day and night; nothing is so hazardous as leaving an almost exhausted patient the whole night without nursing, medicine, food, &c.

In all cases of disease, the condition of the urine should be examined, to ascertain whether albumen or blood discs, indications of congestion or degeneration of the kidneys are present, indications of a loss of the vital fluid. In such cases it must be specially attended to, besides, the skin is usually in these cases dry and harsh, deficient in elimination, it should be stimulated by exercise, by warm clothing, by flannel, the flesh brush, alcoholic vapor bath, &c.

In females, the uterine system should be attended to by the exhibition of iron, senecin, macrotin, trillin, &c. The various vegetable alteratives are useful in dispelling inflammatory engorgement.

## RESULTS OF INFLAMMATION.

### EFFUSION OF SERUM.

Effusion of serum is generally produced either by obstruction to the return of the venous blood, or by inflammation. Of inflammation, it is the earliest and most constant effect, occurring wherever the inflammation exists. If it is followed by any of the other effects of inflammation, it is the most extended of them all. But it is often the principal and only effect of inflammation, as in acute dropsy, which is a good example of an inflammatory state, rapidly producing serous effusions into the cellular tissue or serous cavities. The serum in these cases is always of greater specific gravity, and contains more albumen than in dropsy, from debility. Inflammation always produces more of this effect in patients of a lax, flabby habit of body, in parts of loose and cellular structure, than in those of a firmer texture.

Indeed, after inflammation in any part, some degree of œdema exists, in consequence of the weakened, distended tone of the capillaries, and if the habit be weak, œdema, or the effusion of serum may arise from a very slight cause. Great distension of the subcutaneous tissues by serum may arise from a very slight cause, and is very apt to cause sloughing of large patches of the skin, by mechanically interrupting the supply of blood. This, in all cases must, be prevented by timely aid. In certain diathesis there may exist a tendency to a rapid termination of the inflammation into serous effusion. It is most common on the lower extremities; the swelling is bright red, diffused, very painful, but not throbbing; very prone to terminate in sloughing, or suppuration, but not adhesion, and is a frequent cause of ulcers on the legs.

TREATMENT.—Elevation of the limbs, the application of a roller from the extremities upwards; the application of some spirituous lotion, as tincture of arnica, diluted, acting freely on the bowels, by such remedies as jalapin, colocynthin, podophyllin; stimulating the kidneys by eupurpurin, juniper, &c., sponging also the skin; the constitutional measures must depend on the state of the system. Leeches and punctures should be avoided, as giving a tendency to ulceration.

## REPAIRING OF TISSUES.

This is what is known as adhesive inflammation, a process by which the fibrin of the liquor sanguinis is effused and organized, and converted into some of the tissues of the body. It is the means by which wounded and fractured parts are united; by which loss of substance is restored, whether produced by injury or disease; by which cysts are formed for abscesses, so as to prevent the diffusion of pus, or other morbid fluids through the cellular tissue; by which wounded intestines are glued together, so as to prevent extravasation of their contents, and which in disease produces thickening, consolidation and hypertrophy of organs and obliterations of their cavities.

When the fibrin is first effused, it appears to the naked eye, a soft, gelatinous mass, of a yellowish, white or pinkish color. At first, it is very soft or almost diffuent, but it gradually increases in consistence, and acquires a reticular texture, containing serum in its meshes; when pressed between the fingers, it can be compared to nothing else than a mass of cobwebs moistened with water. Its appearance under the microscope, is that of a number of very thin, transparent fibrils, running in a straight and parallel direction, and having numerous and very small molecules interspersed among them. Molecules, through their own vital forces, collect themselves into groups of nuclei, which become converted into cells, from which the future tissue is developed. The fibrin becomes soon permeated with blood-vessels, which convey materials for the future nourishment and growth of the tissue into which it is converted, and these are formed by the development of cells, which open into each other in continuous lines. The time which recently effused fibrin takes to acquire vascularity, varies with, or according to the vigor of the constitution; where the vital forces are strong, the habit healthy, lymph effused, becomes vascular in a remarkably short time.

*Fibrin* seems capable of being converted into almost any tissue of the body, the conversion in any particular case being determined by the surface from which the fibrin was effused, or by the function it is made to perform. Thus, if a bone be broken or inflamed, the effused fibrin will be converted into bone. If a bone die or is abstracted, still from the lymph effused from the surrounding parts, bone, muscle, fascia, cellular tissue, will unite together and form bone. Take, for example, an unreduced dislocation, the lymph is subject to frequent motion; part will be converted into bone, part into ligament, so as to form a new joint. But there are some tissues that cannot be

replaced, and then the lymph which they secrete is transformed into some other tissue. Thus, muscle cannot be formed anew, but if divided, the uniting lymph will become ligament or dense fascia, like cellular tissue.

All the simple tissues are capable, if divided, of thus being united by a tissue similar to themselves, and of being to a certain extent restored, if obstructed partially. But gland or muscle do not enjoy this faculty.

All newly formed tissues possess certain common properties, such as they are less vascular, have less vitality than the original. They are more prone to run into disease during constitutional disturbance; are more liable to shrink and become atrophied, and even to disappear altogether.

Serous membranes are the most liable to an inflammation of an adhesive character; mucous membranes are quite the reverse.

When adhesion occurs for the normal purpose of reparation after injury, and proceeds favorably, it is attended with a very slight amount of inflammatory action; with no pain, no heat. Indeed, if there be more than a certain degree of excitement, the lymph effused will be broken up by fresh exudations; pus will be formed, and the process of reparation must be commenced anew by means of granulations. In all cases of adhesive inflammations, or effusion of fibrin or the reparatory process, we have a real inflammatory process, or a process essentially the same, to wit: increased attraction of blood and exudation of lymph, which becomes organized, whether accompanied with pain, or heat, or not. It has been a matter of dispute whether coagulated blood, like pure fibrin, is capable of becoming organized. There can be little doubt that the extravasation in the arachnoid is capable of conversion into an organized fibro-cellular substance, very like the false membrane formed under the adhesive inflammation. This is of common occurrence after the blood has been extravasated in the brain. The coagula in obstructed blood-vessels and in obliterated aneurisms, also become covered with a thin, false membrane, evidently formed out of the coagulum itself. Coagula are capable of becoming vascular; but for all practical purposes, it is sufficient to know that lymph, and not blood, is the material employed by nature, under ordinary circumstances, for the production of new tissues and reparation of injuries.

**TREATMENT.**—In all cases where our object is to promote adhesion, the general principles of treatment are self-evident. To maintain the most perfect rest and apposition, and to use such local and constitutional measures as will prevent pain, heat, congestion, &c.; in other words, by arterial sedatives and other measures, to prevent the inflammation from proceeding to a grade of greater intensity than the adhesive. This is the grand method of treatment so successfully adopted by all American practitioners.

In other cases, it may be necessary to excite and stimulate the energies of the system by such agents as wine, milk punch, capsicum, xanthoxilin, beef essence, to render the system powerful and vigorous enough for the production and organization of lymph.

If it is the design to counteract the adhesive inflammation or restrain it, aconite, gelsemin, veratrum, lobelia; the vapor bath should be used. If we wish to remove adhesions or thickening, the results of previous acute or existing chronic inflammation, the general rules and indications spoken of under the treatment of inflammation should be adopted. Very efficient and valuable remedies, in breaking up adhesions, are irisin, podophyllin and stillingin, in combination with some brisk cathartic.

The local means that are most useful to remove thickening or induration, left by a low form of inflammation of any external parts, are frictions, stimulating liniments, iodine, discutient ointment, gentle exercise, pressure by bandages and compresses; or otherwise, cold effusion, irrigation, galvanism, lotions of arnica, &c, counter irritation; always taking care not to reproduce active inflammation by too violent stimulation.

## HEMORRHAGE.

Hemorrhage is another result of inflammation. This, like serous effusion, may be a consequence of *inflammation, of obstruction* to the return of *venous blood*, and of some structural weakness of the blood-vessels or thinness of the blood, as in scurvy and putrid fevers, or in the state of leucocythæmia after diphtheria. Hemorrhage from inflammation is active; from other causes, passive.

Active hemorrhage consists in an escape of arterial blood from the capillaries, which are most probably ruptured by the distention caused by acute inflammation or violent excitement. This occurs in every case of violent inflammation; it occurs during the formation of abscess in the cellular tissue and the liver. The most common seat of inflammatory hemorrhage is the mucous membrane, especially the lungs, intestines.

The principal incidents of hemorrhage which fall under the surgeon's care are epistaxis, or hemorrhage from the nose; hemorrhoids, or hemorrhage from the rectum; hemorrhage from the urethra during gonorrhœa, and from granulating wounds. It has occurred rarely from the conjunctiva; more rarely from the pleura, pericardium and peritoneum.

In passive hemorrhage, the blood which escapes is venous. The principal instances of it are hemorrhage from the nose in all subjects, with cirrhosis, hemorrhage from the liver, passive hemorrhagia and hemorrhoids.

In treatment, the chief remedies are astringents, cold, creosote, ergotine, the perchloride of iron, the exposure of a bleeding surface to the air. Among the most valuable styptics are matico, gallic and tannic acid; benzoic acid, dissolved in alum; erigeron, Monsul's salts, rhusin, gelsemin, hamamelin, &c., perfect rest and an elevated position.

Another result of inflammation is the formation of a fluid called pus. What is called healthy or laudable pus, is a thick, bland, homogeneous fluid, nearly white, and of the consistence of cream. It dif-



fers from the natural secretions of mucous membranes, in containing swollen and decomposing globules, and in sinking in water, and being rendered gelatinous and ropy by the action of potash; while mucus swims, and is readily dissolved by the alkali. Pus is considered unhealthy when it contains blood or other abnormal ingredients. The nature of pus depends a good deal upon any variation from the standard of health. Healthy pus answers many secondary purposes, besides relieving the system of dead or dying blood. It is nature's method of protecting the parts from the air, and promoting granulation. It is very slow in putrefying or undergoing further chemical transformation.

When improperly constituted or elaborated, it may possess every variety of bad quality, from the slightly irritating to the specific poisoning properties of contagion. Even the healthiest pus seems to communicate the suppurative quality to any other parts than those discharging it, unless when they are protected from it, as by cuticle or epithelium. Its injurious effects when taken back into the blood, and thrown by it on internal parts, are well known. Another result of inflammation, is the formation of an abscess.

### ABSCESS.

Abscess may be defined to be a collection of pus in the substance of any part, or in any cavity. There are two kinds of abscesses; the acute and chronic.

**SYMPTOMS.**—Acute abscess commences with all the ordinary signs of inflammation, namely: inflammatory fever, throbbing pain, bright redness, and much swelling; firm in the centre, and oedematous all round. The occurrence of suppuration is indicated by severe rigors, by abatement of the fever, and change in the pain,—which is converted into a sense of weight and tension, with a pulsatory feel at each beat of the arteries. Then the tumor becomes softer, loses its bright arterial color; and as the quantity of matter increases, its centre begins to point; it assumes a pyramidal form, and fluctuation can be felt by alternate pressure with the fingers. The pus having formed, its next step is its evacuation, which is effected by absorption; that is, the successive absorption of all the parts intervening between the abscess and the surface, or by their successive atrophy and disintegration. If unrelieved by art, the tumor becomes more and more prominent, soft; the surrounding inflammation and tumefaction subside, the centre becomes of a dusky red or bluish tint, the cutis is removed, cuticle bursts, and the pus escapes.

Abscesses may burst into serous cavities or mucous canals if they be near, still their general course is that which is least prejudicial, to wit, the skin. The cause of this happy provision is not well known, although it has engaged the attention of some eminent pathologists.

When the abscess is opened by nature or art, and the pus evacuated, the bottom becomes covered with numerous small, red, vascular eminences called granulations. These are formed by the effusion of lymph, part of which takes on vital organization, vessels from the

parts beneath elongate and branch through them, they become part of the living surface ; part degenerates into pus.

If the energies of the constitution are vigorous, the vital forces strong, the granulations will be numerous, but small and florid, from containing many capillaries ; whilst if the energies of the constitution are low they will be large, pale and flabby. The pus from healthy granulations is laudable and creamy ; from unhealthy pus, thin and flakey.

CICATRIZATION.—When divided parts of the walls of emptied abscesses are not brought together, healing commonly takes place by means of the granulative structure. When the cavity becomes filled up by the union and growth of granulations, the red, inflamed skin around its orifice is removed by ulceration, so that the margin of the sore becomes adherent and fixed, and then circulation begins ; a white pellicle extends from the circumference gradually over the whole surface, and becomes organized into a new cutis and cuticle, called a cicatrix. A fresh cicatrix is redder, more vascular, than the original skin, but afterwards becomes less so, the vessels contracting, and that part of the surface having ever after less vitality.

But the filling up of a vacancy in the tissues, whether in consequence of an accident, abscess, or ulceration, need not necessarily be attended with suppuration, nor with the peculiar appearance of granulations. On the contrary, if all inflammation be subdued, if quiescence be maintained, and all irritation excluded, the chasm may be filled up with red lymph, which speedily cicatrizes. This is constantly observed after trifling injuries ; they speedily become covered with a scab, formed of blood or lymph, under the protection of which they soon cicatrize, and when this can be effected, large wounds should be made to heal in the same way.

This form of reparation should be aimed at in the treatment of all cases where it is admissible.

CAUSES.—Acute abscess is mostly idiopathic, that is, it depends on constitutional causes, and is frequently a sequel of some disease ; it may be caused by blows, ecchymosis, injuries, or by foreign bodies introduced into the skin or flesh.

TREATMENT.—In a case of idiopathic abscess, the indication always is to remove, if possible, the morbid state of the constitution, on which it depends, and to hasten the process of suppuration by every means. In abscesses arising from local injuries, all exciting causes, such as foreign bodies, should be removed, and inflammation should be combated by every means within our reach, and as soon as suppuration seems inevitable, means must be resorted to to hasten it. For which purpose poultices are admissible remedies ; they relax the skin, promote perspiration, soothe pain, encourage the formation of pus, and hasten its progress to the surface. As a general rule they should be *large*, so as to become neither cold nor dry ; they should be *soft*, that they may not irritate ; *light*, that they may not fatigue, and they should be renewed very frequently. They may be made of various ingredients, as elm or linseed, which is useful ; carrot poultice is a valuable application to ulcerations and swelling ; alkali or yeast or charcoal, might be added to suit the indications ; Indian turnip, cicuta is excel-

lent to produce suppuration; black willow poultice is good in the successful treatment of abscess; chamomile flowers boiled till they are soft, bran in a linen bag; which may be dipped into boiling water as often as it becomes cold. The warm water dressing—that is, a piece of soft linen folded, or lint, dipped in warm water and covered with oiled silk to prevent evaporation, is a good substitute for a poultice in numerous cases, especially for irritable sores; but where there is much pain it is not so soothing, as the large, soft, warm mass of a well made poultice.

Regarding the opening of abscesses, it may be laid down as a general rule, that if they point and become pyramidal, without enlarging in circumference, they may be left to themselves; but if they enlarge in breadth and circumference, without tending to the surface, they should be opened. The following may be enumerated as a few general rules where the surgeon's aid is imperatively demanded.

When matter forms beneath fascia and other dense ligamentous textures, such as the sheaths of tendons, or under the thick cuticle of the fingers—the pus, instead of coming to the surface, will burrow amongst muscles and tendons, extending the abscess to great distances, producing great pain and constitutional disturbance by its tension of the fascia which cover it, and pressure on the parts beneath; endangering extensive sloughing and impairing the future movements of the parts. Hence, as a general rule, all abscess beneath fascia or among tendons, or under the thick cuticle of the fingers, should be freely opened as soon as the existence of matter is suspected. This is more especially true or applicable to those collections of matter which sometimes form beneath the periosteum, in inflammation of that membrane. The pain which accompanies periostitis is very violent, but yields quite readily when an incision is made through the inflamed tissue—the pus is thus permitted to escape, instead of denuding the bone more and more, and causing its subsequent death. The incision must be made in all cases, for, as a general rule, inflammation of the periosteum is most frequent in those bones, and those portions of the bone which are nearest the surface.

When abscess is caused by the extravasation of urine or other irritating fluids, or when it contains unhealthy matter, which might diffuse itself and spread the disease, it must be opened.

When an abscess is formed in loose cellular tissue, which would readily admit of great distension and enlargement of the sac, and more especially if the cellular tissue is partially covered with muscles under which the matter might rest.

In suppuration near a joint, or in the parietes of the chest or abdomen, or under the deep fascia of the neck.

In suppuration of very sensitive organs, as the eye or testis, when it is desirable to avoid the scar, which ensues when an abscess ulcerates spontaneously.

It cannot be too strongly insisted on, the great importance of promptly opening abscesses of glandular organs, particularly those of which the capsule is firm and not prone to ulcerate, and thus allow the pus to evacuate itself. If we delay the incision or the appropriate

remedies, the entire gland may become replaced with pus—early attention to these cases is indispensable.

The best method of opening an abscess is by the bistoury on a grooved director, and the puncture must be made at the most depending part of the abscess, or else where the matter points most decidedly, and the skin is thinnest, and in a majority of cases I have found it good practice gently to introduce a piece of oiled lint between the edges of the opening, and allow it to remain for the first forty-eight hours to prevent them from closing.

In other cases, again, it is good practice to make several small punctures at different points, and allow the matter to exude through them. In this way no scar is left, at least none of any size. It is a reprehensible practice, that of inserting grooved needles for the purpose of exploration; it should be avoided if possible; it is also reprehensible to squeeze out matter, although compresses and adhesive strips are of the greatest utility; the matter should be allowed gradually to exude in a poultice or fomentation.

The poultice or fomentations may be continued until all pain has subsided, and the cavity has begun to granulate, but not too long, lest the granulations become weak and flabby, and then the best method is to apply a compress of linen or strips of adhesive plaster and a bandage. If the cavity does not contract speedily, it should be treated the same as an indolent ulcer; if the suppuration continues profuse, tonics, change of air, good diet, and thorough hygiene are indispensable, in order to prevent leucocythæmia, and to enable the constitution to repair the local injury.

It occasionally happens that abscesses are cured by the absorption of their pus. This is likely to happen when, after inflammation, the matter remains without coming or tending to the surface, and without pain. The best means adapted to promote it, are cold lotions, discutient agents, gentle pressure by means of compresses, bandages, tonics, purgatives, alteratives, mild cutaneous stimulation by frictions, shampooing, galvanism, and counter-irritation with iodine, blisters, irritating plasters.

### CHRONIC ABSCESS.

Chronic abscesses are the result of a low degree of inflammation, so very slight that their existence is often unsuspected for a long time. Chronic abscesses are mostly deep-seated, whilst the acute are mostly superficial. In some cases they are so completely enveloped in a cyst as to resemble very much an encysted tumor. As a general thing, they are mostly lined with a thin, reddish-gray, distinctly organized cyst; and there is little or no vascularity in the parts adjoining, and the pus is usually serous or curdy. But sometimes the cyst is thick, cellulo-fibrous, and the matter concrete.

**SYMPTOMS.**—When first detected, a chronic abscess appears as an obscure tumor, with fluctuation more or less distinct, according to its distance from the surface. It is free from pain, tenderness, swelling and redness, unless far advanced or accidentally inflamed.

**PROGRESS.**—Chronic abscess may attain an enormous size, partly



because the sac, being thin, is readily extensible; partly because of the atonie, indolent grade of the inflammation, which is insufficient to implicate the adjoining textures, and make the coverings ulcerate. When, however, from the increasing distension, some more active form of inflammation—some accidental irritation—ulceration does happen, the skin reddens, inflames, ulcerates, and so the matter is discharged.

**TERMINATIONS.**—In slight cases the stimulus of the air causes the interior of the sac to pour out granulations—the inflamed skin around the orifice ulcerates, and the sore so formed may heal. If the vital forces are weak, or the parietes of the sac have been unequally pressed together, or the abscess is caused by a piece of diseased bone, or some other permanent source of irritation, which is not removed, one or more sinuses may remain. If, on the other hand, the abscesses are large, or if, after the admission of air, the pus has not a free exit, a most serious train of consequences will ensue. The pus, exposed to the atmosphere, putrefies—the hydrosulphate of ammonia, the product of putrefaction, is absorbed into the blood, the interior of the sac inflames, partly from the irritation of the air, but chiefly from the putrid pus, and then the grave and irreparable local disease, together with the contamination of the blood, inducing pyæmia, typhoid fever, under which the patient generally sinks.

**PROGNOSIS.**—The danger of these abscesses will be great, if the sac has attained a large size, and has advanced so far towards ulceration, that a spontaneous and permanent aperture is inevitable, and more especially if it be complicated with some disease of the joints, which keeps up the secretions of pus, and prevents it from closing.

**TREATMENT.**—In these cases the general health must be attended to, thorough hygiene, pure air, bathing, cleanliness, the best of animal and vegetable diet, fruit, wine, and, indeed, everything should be resorted to that has a tendency to build up and invigorate the system. The cause, if ascertained, should be removed by proper means. The patient might be advantageously placed upon such remedies as *irisin*, *stillingin*, *menisperm*, *iodide* or *bromide* of *potassium*, in alternation with half-grain doses of *permanganate* of *potash*. At the same time, if possible, absorption must be excited. For this purpose, stimulants, discutients, counter-irritants, friction, *iodine*, electricity, cold effusions, an application of packs, are the best remedies, but, as a general rule, if they irritate they do harm. But if, notwithstanding all these measures, the abscess continues to enlarge, it cannot be opened too soon, especially if there is any incipient redness of the skin. The treatment must, in all cases, be varied to suit the indications of the case.

If the abscess is superficial and small, it may be opened with a lancet or bistoury, the matter should be gently evacuated; then strips of adhesive plaster should be passed round the part, so as to give compression, to keep the edges of the sac in apposition, by a moderate degree of pressure; then a compress, wet with an astringent lotion, and over and above all a roller. A free exit being thus made for the pus, the opposing surfaces of the cavity under the compression will often granulate and adhere, then the external aperture heals, and the

case is cured. If, however, from some deficiency of action, or imperfection in treatment, this adhesion does not take place, weak stimulating injections of permanganate of potash, or nitric acid, or sulphate of zinc, or vegetable caustic, or another opening might be made, or a seton might be passed through the sac, or if it be long and fistulous, it might be slit up and made to heal from the bottom, or injections of chloride of zinc, nitric acid, caustic potash, iodine in solution, might with advantage be used. In some cases, where a considerable portion of the skin has become thin and red, showing signs of ulceration, and an extensive aperture, it is advisable to use the caustic potash, so as to destroy it, and avoid the more painful and tedious process of ulceration.

If an abscess be seated in the neck of a female, it is of the greatest importance to make an early opening, so that no scars be left; in making this puncture, a very fine lancet should be used. The punctures should be large enough to extract all flakes, but no larger, and it should be made transversely, so that its minute cicatrix may be hidden by the folds of the neck. Adhesive plaster, or gauze and collodion, should then be applied with moderate pressure, and weak stimulating injections may be used, if the sac does not become obliterated in a few days.

If the abscess is so large that the exposure of its cavity would lead to ill consequences, or if it be connected with disease of the spine, or bone, as in the case of psoas abscess, the following plan of treatment might be resorted to, advantageously, with a view to the reduction of the contraction of the sac, of diminishing the danger from a permanent opening, should one be subsequently established. A small valvular opening should be made at the most depending part of the tumor; as much matter as flows out spontaneously should be permitted to escape, and then the puncture carefully closed by lint and plaster, and rest enjoined till it is healed.

During the flow of matter, the greatest care should be taken to prevent the admission of air into the sac. At the expiration of a few days, when it is nearly refilled, perhaps a second puncture, not too near the first, should be made, and also healed in the same manner.

This process might be repeated, at proper intervals, never allowing the abscess to become as distended as it was before the previous puncture, and using moderate support by compresses and bandages, in the interval. Partial evacuation, with the proper constitutional and hygienic treatment, will cause the abscess gradually to contract, so that it either becomes completely obliterated or degenerates into an insignificant fistula.

But if air has gained admission into the cavity of the abscess, and the pus has become putrid, and prostration of strength, dry brown tongue, showing the influence of a poisoning operation on the vital tissues, then the indications plainly are, to make free openings and counter-openings, so as to prevent the lodgment of the putrid pus, and to wash out the sac occasionally with injections of permanganate of potash. At the same time the general treatment which we have laid down for typhoid fever should be adopted.

## MORTIFICATION.

When inflammation is about to terminate in mortification the redness assumes a darker hue, purple or blue; the heat, sensibility, pain diminish, but the swelling increases, owing to the continued effusion of yellowish serum, which not unfrequently exudes through the skin, and elevates the cuticle into blisters. If the gangrene proceeds to its termination, the color becomes dirty brown or black; the parts become soft, flaccid, cold, and crepitates on pressure, and emits a cadaverous odor from the gases, that are evolved in incipient putrefaction. When gangrene is spreading, the dark color is diffused and imperceptibly lost in the adjacent skin, but when its progress is arrested, a healthy circulation is re-established up to the margin of the sphacelated portion, and a bright red line of adhesive inflammation, technically called the line of demarcation, separates the living from the dead tissue. The appearance of this line is most important, as a means of prognosis, because it shows that the mischief has ceased; that there is vitality enough to repair its ravages. It is at this line that the dead part is separated, which separation is the result of the softening of that layer of the living part which is contiguous to the dead. Its progress is as follows: a narrow white line, consisting of a narrow, circular vesicle, formed by a separation of the cuticle, first appears on the bright line of adhesive inflammation, before noticed, and when this is broken, a chain of minute ulcers is seen underneath it. These gradually unite and form a chink, which widens and deepens till the slough is entirely detached, and then a granulating and suppurating surface remains. In this manner, the whole of a mortified limb has frequently been amputated—bone and tendons separating higher up, and being more slowly detached than the skin, muscles and blood-vessels. When the adhesive inflammation has duly taken place, this process of separation is unattended with hemorrhage—the vessels being obliterated by the effusion of lymph, and the coagulation of blood within them. This coagulation extends some distance from the mortified part, so that a limb has been frequently amputated in the thigh for mortification of the leg, without the loss of blood from the femoral artery. In hospital gangrene the vital processes of adhesion are deficient, and the blood is found fluid in the vessels, so that the separation of the slough is attended with severe hemorrhage.

CONSTITUTIONAL SYMPTOMS vary with its cause. If it arise in a healthy subject, from acute inflammation, which is still progressing, we will have inflammatory fever; but if the mortification be very extensive—if the inflammation of the subjacent parts be healthy, with no disposition to form the line of demarcation, but with a greater tendency to serous effusion—or if the mortified part be of great importance, as intestine or lung, the constitutional symptoms will be of a low typhoid character; there will be anxiety, hiccough, sallow skin, soft, rapid, thready, jerking pulse, profuse perspiration, of a cadaverous odor.

DIAGNOSIS.—It is very important not to confound the lividity and vesications of bruises, especially when they accompany fracture, for

gangrene. They are to be distinguished by their sensibility, temperature, and by the fact that, in gangrene, the whole cuticle has lost its adhesion to the cutis, so that pressure will cause the vesicle to change its position.

TREATMENT.—The most pressing indications are, to allay inflammation, if excessive; to support the strength, and to cause the formation of a line of healthy adhesion, by which the mortification may be arrested. Our aim should be to arrest and prevent any further extension of it, by both local and constitutional treatment. If it be connected with, or dependent on inflammation, measures must be taken to control it. If debility be the predisposing cause, it must be remedied; the strength of the patient must be augmented and maintained by every means in our control. If it occur in a young, robust subject, with great pain, a high grade of arterial action, full, hard, strong pulse, and it appears likely to spread, from the violence of the inflammation, it may be necessary to resort to aconite, veratrum, gelsemin, &c., internally; fomentations, antiseptic, stimulating poultices, externally; cathartics, diuretics, alkaline baths, &c. But care must be taken to reduce the strength as little as possible.

But if we have a quick pulse, and signs of deficient vital power, resort at once to stimulants and anodynes—brandy and hyosciamus, whose effect will be to make the pulse slower and firmer, and induce a state of warmth, gentle perspiration and sleep; but if they induce or aggravate delirium or restlessness, their administration would be injudicious. I regard alcohol here as the best stimulant, because it diminishes vital metamorphosis, and it is safer to trust to it in urgent cases, than to load the stomach with much medicine. Fluid nutriment, such as milk punch, beef tea or essence, eggs, bland diet, may be given. Tonics should be administered; the wine bitters might be given; permanganate of potash, a glass of yeast three times daily.

Hyoscinamin is of great use from its power of allaying irritability, so that it renders the constitution insensible, as it were, to the local mischief; it is better than any of the preparations of opium, in not drying up the secretions, which ought to be active; it is best administered often in small doses, frequently repeated, increased towards night; if there is a disposition to restlessness, it is best to give it in full doses. The best tonics are, bark, hydrastin, the phosphates, iron, wine of comfrey, &c.

Bark is most efficacious in an acid mixture, given every few hours in combination with capsicum. Capsicum is a good stimulant in mortification, superior to ammonia, or xanthoxylin. Ammonia has some weighty objections as a stimulant; if used long, it depresses the vital energies and impairs the secretions.

If a part be gangrenous, but not quite dead, its temperature should be carefully maintained, and its action attended to by warm poultices and fomentations. For this purpose, capsicum is an invaluable agent applied to and near the line of demarcation. Yeast and charcoal mixed with elm bark, and common salt. Pyroligneous acid is an excellent application; it can be used alone, or in connection with the salt and charcoal; it is stimulating and antiseptic. Solution of



bromine or permanganate of potash, wild indigo weed, black willow bark, will be beneficial.

The position of the part affected is a matter of some importance; if one of the limbs be the seat of the disease, while the inflammatory process is still going on, it should be retained in an elevated position, perfect rest enjoined, all of which may be gradually dispensed with, as the activity of the part diminishes.

If the death of the part has actually occurred, the powers of the system languid, and there is little disposition to form the line of demarcation or to throw off the dead parts, stimulating treatment is still more necessary. Capsicum near the affected part, nitric acid lotion, yeast and charcoal poultice, turpentine ointment, balsam of Peru, benzoic acid, the chlorides in solution, frictions, incisions, are sometimes of value in arresting mortification, attended with extensive effusion of serous or purulent fluid, which not only contaminates the blood, but depresses the nervous system by absorption, and also propagates the disease, by diffusing themselves along the cellular tissue, into parts that are still sound. If the progress of gangrene is arrested, and the dead parts are about to separate from the living, the formation of the line of demarcation is the point gained.

QUESTION OF AMPUTATION.—In the treatment of spontaneous gangrene of the lower extremities, is it proper to wait for the formation of the line of demarcation, so as not to have, to run the risk of a stump with diseased vessels? We think it is good practice, and one sanctioned by all surgeons, to wait until this line is formed, and to seize the opportunity when there is doubt about the soundness of the vessels above and amputate high up. It is true, there are always risks where we have a long process of separation between living and dead tissue; the most dreadful that we must guard against is purulent absorption, and the deleterious effects of noxious gases generated during decomposition.

Mortification, generally local in the first instance—how long it remains so, depends in a great measure on the excitability of the constitution of the patient, his powers of resistance. There is always sufficient time for its continuance as a local disease, to allow of the commencing mortification being clearly perceived, and its probable extent ascertained at an early period. But would it be proper to wait for the line of demarcation, if the mortification be local in its cause, as mortification from compound fracture, or from injury, or from aneurism of the large arterial trunks?

What, under these circumstances, should be done? Must we wait, or amputate immediately? The latter is justifiable, and it is also proper when it is impossible to limit gangrene as a last resource.

Mortification may arise from some obstacle to the return of the venous blood, such as we very frequently see in the lower extremities of the dropsical patients, who suffer from disease of the heart, and in these cases it is always preceded by œdema. It may occur with or without inflammation, but if it attack œdematous parts, the tendency is to terminate in gangrene.

TREATMENT.—The part should be put in an elevated position, the

secretions should be attended to, and good diet and thorough hygiene observed. The mortified part is best treated with lotions of bromine or nitric acid, or the alkali permanganates, or lactic acid, bandages and stimulating dressings.

We have also mortification from pressure when a patient is confined to bed with some tedious and debilitating disease, as paralysis, and is unable to change his position; the skin covering the various bony projections, as the sacrum, the brim of the ilium, &c., is apt to inflame, and rapidly ulcerate and slough, and more particularly, if irritated by neglect of cleanliness or by contact of some secretion. The premonitory symptoms are as if there were crumbs in the bed. The parts, when examined, look red, at first rough, then excoriated, then ulcerate or turn black and mortify.

TREATMENT.—When long confinement to bed is expected, it is a good plan to guard against it by the application of some stimulant to the skin of the hips and back, to cause it to secrete a thicker cuticle, and enable it to bear pressure better. Alcohol, tannin, tannate of lead, chloride of soda, collodion, balsam of Peru, &c., will all be found useful. Cushions, so arranged as to take off the weight from the affected parts, and the patient should be made to change his position frequently, be propped up with gum elastic cushions; sometimes a poultice is found of service. If sloughing has commenced, lotions of bromine, permanganate of potash, according to the indication.

### SENILE GANGRENE.

Dry gangrene commences with a purple or black spot on the inner sides or extremity of one of the smaller toes, from which spot the cuticle is always found to be detached, and the skin under it to be of a dark red color. In some few instances there is little or no pain, but in the greater number of cases the patients feel great uneasiness through the whole foot or joint of the ankle, particularly in the night, and this occurs sometimes long before there is any discolored spot at the end of the toes. Its progress in some cases is slow, in others it is rapid and excruciatingly painful. On the first appearance of it, the actual gangrene will be generally perceived by a dark, red, congestive inflammation. The dead parts become shrunk, dry and hard, and when the diseased part makes a temporary pause, which it frequently does, they slowly slough away; but a fresh accession of gangrene mostly supervenes before any progress has been made toward cicatrization. In this way the patient may live for several years, but, as a general thing, sinks exhausted with the nocturnal pain before the whole of the foot is destroyed.

PATHOLOGY.—This disease is caused by the ossification of the arteries, or by their degeneration into impervious cords. Hence the foot is imperfectly nourished; it is weak and liable to pain and numbness; if heated after being cold, a chilblain, or any other source of inflammation, is sure to terminate in gangrene. In all cases we have a languid circulation.

TREATMENT.—In the treatment of dry gangrene, an effort must be

made to maintain the circulation of the blood in the part, by the application of such agents as capsicum and artificial heat; any tendency to overaction must be controlled by soothing means; give the patient rest; confine him to bed; give him a generous diet; regulate the bowels by such agents as leptandrin and juglandin. Avoid stimulants. After the application of an appropriate stimulant locally, perfect rest in the horizontal position; the whole foot and limb might, with advantage, be wrapped up in repeated folds of cotton wool, and afterwards placed in the fracture-box. The limb being placed in the most favorable circumstances for the maintaining of its circulation and its treatment, the gangrene will often cease. If, however, the inflammation is very acute, the heat great, the treatment must be modified to meet the indications. Tonics internally, stimulating dressings externally, may be used to hasten the slough.

GENERAL REMARKS ON MORTIFICATION.—Mortification signifies the death of a part of the body in consequence of injury or disease.

SPHACELUS, to an irrecoverable, utter loss of life.

GANGRENE, to the state that precedes sphacelus. In gangrene we have a diminution, but not a total destruction of the powers of life, in which blood circulates through the larger vessels; in which nerves retain their functions; in which the part may still be supposed to be capable of recovery. Gangrene may be dry or humid; the former due to a deficient supply of blood, or from some constitutional cause; the latter being a consequence of inflammation, or an obstacle to the return of venous blood; and the mortified part being loaded with fluid effusions, soon undergoes decomposition. Another division has been spoken of—constitutional or local. The former, that which originates in a constitutional disorder; the latter, in which the system is not implicated. But these words or terms do not convey to the mind of the surgeon any practical idea. The local predisposing causes are congestion, deficient arterial circulation, structural weakness. The constitutional causes are debility from old age, poverty, starvation, hemorrhage, scurvy, protracted disease of any kind, disease of the heart, with contraction of the aortic orifice, so as to impede the circulation, and that peculiar state induced by the action of certain diseased products, as food. These are frequent predisposing causes.

Exciting causes are mechanical injuries, gun-shot wounds, fractures, long continued pressure, extravasation of urine, injury of nerves, &c.

### ERYSIPELAS.

Erysipelas is a peculiar form of unhealthy inflammation, attacking the skin and cellular tissue, deriving some of its peculiarities from the structure affected; but whenever it occurs, exhibits certain characteristics that distinguish it from ordinary inflammation.

Its most prominent characteristics are, it has a disposition to spread widely along the surface of membranes, or in the cellular tissue. The lymph that is secreted is incapable of organization, and instead of confining effusions into the cavity of an abscess, permits them to be

widely diffused, and thus extend the disease to sound parts. Erysipelatous inflammation is liable to attack different parts,—sometimes simultaneously, sometimes by metastasis, leaving one part and flying to another.

Some varieties of erysipelatous disease prevail epidemically together, and are capable of propagation by infection or contagion. There is a variety of diseases that may be grouped together as partaking of the erysipelatous character, and which are all probably caused by the admission of some nearly allied varieties of putrid miasmata into the blood, such as the simple or cutaneous, and phlegmonous or cellulocutaneous erysipelas, the diffuse inflammation of the cellular tissue, puerperal fever, pyæmia, &c. We frequently find puerperal fever and erysipelas co-existent at the same time in certain localities; and it has been very clearly demonstrated that the infection of either of these two diseases may produce the other; and it is well known that inoculation with the fluids of a female who has died of puerperal fever, is a most fruitful source of cellular inflammation to the practitioner.

Erysipelas is an inflammation of the skin and subcutaneous cellular tissue, having a tendency to spread.

**SYMPTOMS.**—The cutaneous or simple form is characterized by redness, elevation, burning pain. Compression produces pale dimples,—the redness for the time being disappearing on pressure; considerable puffy swelling from serous effusion into the cellular tissue; severe, stinging, burning pain; the redness of a vivid scarlet hue; faint and yellowish, if the disease is attended with much debility; or if it affects the eyelids, scrotum or other loose cellular parts, where it usually produces a good deal of serous effusion.

In the cellulocutaneous or phlegmonous variety, the redness is deeper, and sometimes dusky or purple, and it is scarcely at all dispelled by pressure; the swelling is greater, hard, brawny, tense, and the pain is not only burning, but throbbing. Then ichorous pus is formed, which infiltrates the cellular tissue; ulceration and sloughs follow. The constitution sympathizes, so that we have fever, hectic, and sometimes complete prostration of the vital powers.

**CONSTITUTIONAL SYMPTOMS.**—Both varieties are ushered in with rigors, headache, pain in the back, nausea, bilious vomiting; and both are attended with fever, which generally varies in type, according to the intensity of the cause, the vigor of the constitution and the nature of the disease. It may be of an ardent inflammatory character, requiring very prompt treatment. It may assume a low typhoid form; or if the habit is much vitiated, broken down, and the patient living in a close, foul, ill-ventilated abode, it may assume a malignant form. When situated on the face and scalp, it is liable to be complicated with delirium in its early stages, and coma in the latter stages, from the irritation propagated to the brain and its membranes.

*Cutaneous erysipelas* may terminate in *resolution*, leaving nothing but disquamation of the cuticle, with slight œdema. This mild form is usually designated erythema; it sometimes produces large bullæ or vesicles from effusion of serum under the cuticle; and these gradually dry into scabs, which peel off, and leave the cutis either healed or



superficially ulcerated. Sometimes it is followed by abscesses. Its ordinary duration is from seven to fourteen days. In some cases, the disease assumes a lingering, erratic form, wandering progressively along the skin, spreading in one direction and fading in another; sometimes entirely disappearing from one part, and flying, by metastasis, to a distant one; and in some cases it quits the skin suddenly, and attacks some internal organ, and that internal organ is affected with a species of inflammation exhibiting all the constitutional characters of the disease.

The phlegmonous or *cellulo-cutaneous* erysipelas, under proper treatment, will terminate as favorably as the simple variety; but in some cases it leads to unhealthy suppuration and sloughing of the cellular tissue, in which case the swelling becomes flaccid and quaggy; patches of skin become purple, covered with livid vesications; and these patches slough, give exit to a sanious, thin pus, and to flakes of disorganized cellular tissue; and in some cases, not only the subcutaneous, but the intermuscular tissue and fascia slough, rendering the limb useless, even should the patient escape with his life. After a very severe attack, the cellular tissue is very apt to be left in a brawny, hardened state, through the infiltration of lymph.

**PATHOLOGY.**—Erysipelas is a blood disease. In many respects there is a close analogy between it and scarlet fever, the kind of fever, the sequelæ, and the critical discharge of coagulated urine. There is a state of leucocythæmia.

**PROGNOSIS.**—This is favorable under the reformed system of practice; still, it must be guarded, if the patient is old, enfeebled, or habitually intemperate; if the constitutional affection is low or typhoid; if the malady is situated on the head and throat, and there is coma and great dyspnoea; or if it be of the phlegmonous variety, and a large portion of the skin and cellular tissue is on the point of sloughing. If the affection is not perfectly controlled by the seventh day, the prognosis is not favorable, even though the local symptoms appear to be improving.

**CAUSES.**—Fatigue, foul air, intemperance, epidemic influence, contagion, injuries; or rather, these causes render the constitution liable to this peculiar form of inflammation. Any causes which are capable of irritating the digestive organs, exhausting the nervous system, and vitiating the blood, may tend to develop it. The cause may be epidemic; it may be due to certain states of the atmosphere, affecting several persons in the same districts simultaneously. It may also be propagated by contagion or infection; by means of emanations from persons affected with it. These causes, of themselves, may be sufficient to produce the disease, or may merely predispose to it on the occurrence of some injury to the skin, which may act as an exciting cause. Idiopathic erysipelas generally attacks the face and scalp.

**TREATMENT.**—The indications for the constitutional treatment are to diminish inflammatory action, febrile excitement; to support the strength and to correct the secretions, and for the local treatment, to allay irritation, to arrest the extension of the disease, and to give free outlet to sloughs and discharge.

In our treatment, we must remember that it is occasionally a fatal disease; that it varies in type, at different periods and in different sections, sometimes requiring most energetic means, our most powerful agents to control it, and at the same time requiring stimulants and tonics. To be successful, the disease must be studied in all its modifications, and the effects of remedies noted, in order to guide to a rational treatment.

In my treatment of erysipelas, in all its forms, my course has been first to exhibit a powerful but stimulant emetic, and follow with leptandrin and podophyllin. In all cases, the chylo-poietic viscera are irregular in function and secretion, and require the agency of a stimulant; these unload the bowels, relieve the biliary congestion, and improve the whole aspect of the scene. But these remedies must not be pushed too far; *an emetic of lobelia should be given on the first occurrence of the symptoms.* The wine answers a most valuable purpose. The action of the lobelia seems to be universally developed over the system; it stimulates the hepatic ducts, cleanses the upper part of the intestines, also the stomach, modifies the fever, diminishes the heat of the skin, relieves local turgescence, furnishes many other indications of amelioration, and in some cases aborts the attack. Two or three doses generally of the podophyllin are sufficient. Having rectified the stomach, liver, and corrected the vitiated secretions, then control the fever with aconite, gelsemin, veratrum if not contra-indicated. In the use of these agents bear in mind the pathology, and that, above all things, debility is to be dreaded.

Tonics and stimulants should now be given; they should be resorted to without delay—the powers of the system must be upheld from the commencement, and by this means prevent any secondary phenomena from exhibiting themselves—give food and stimulants, perseveringly, at stated intervals, day and night, beef tea and brandy.

If the force of the poison fall principally on the mucous membrane of the pharynx, so that the patient cannot swallow, the only resource left is to throw strong injections of essence of beef, containing large doses of quinine, into the rectum. The fauces might be touched with a strong solution of equal parts of myricin and sanguinaria, and as soon as the patient can swallow, tonics, stimulants, and bland nourishment. The stimulating, supporting plan is best calculated to save life and prevent the secondary effects of the malady. My plan of treatment is as above, giving food, stimulants, tonics, early, freely and steadily, beef tea, brandy diluted with water, and if drugs are wanted, ammonia, xanthoxylin, quinine and iron.

It is best, if alcohol is used as a stimulant, to give only one kind, such as brandy, and for nourishment observe the same rule. If this treatment is carefully carried out, all complications will be prevented, such as delirium, coma. Of all stimulants alcohol is the best, and if brandy can be got, let that be the choice, it acts as an antidote to the erysipelatous poison.

The preparations of cinchona are pre-eminently indicated, and a good and an effective tonic may be made by pouring a pint of boiling water on an ounce of bruised bark, the water being first acidulated

with three drachms of diluted sulphuric acid. It differs from the infusion cinchona of the pharmacopœia in the maceration with acidulated water, the object of which is to render the kinate of cinchona more readily soluble. This is a good tonic, quite as efficacious and free from some objections as the more costly preparations of bark. The hydrastis, tamarac, &c., are good, but cannot compare with cinchona in erysipelas. This affection invariably requires a tonic course, because the type of the disease depends upon a deteriorated condition of the constitutional powers, and the cause of this deterioration is capable of very important modification.

In all cases of erysipelas give iron, twenty drops of the tinct. ferri chloride, or the pyrophosphate of iron by hydrogen; it is specially indicated from the pathology of the affection, valuable in all cases, and many lives might be saved by a bold and persevering use of iron. We generally have albuminuria coincident with or consequent on erysipelas, and here it is a valuable remedy.

The alcoholic vapor bath, or sponging the entire surface with the alkaline wash, must not be neglected. Irritation must be allayed, sleep must be procured by lupulin and hyoscin or a subcutaneous injection of morphia. For the delirium, belladonna and gelsemin, musk, counter-irritation, &c.

The treatment in all cases must be modified to meet the indications—the differences of innervation and vascular action—no uniform plan of treatment is applicable to all cases; the attendant circumstances of each particular case must be duly considered before any exclusive mode of treatment can be resorted to. In all cases, whatever the after treatment may be, rectify the morbid secretions connected with gastric and biliary irritation, attend to the impaired functions of the skin and kidneys. In the convalescing state, vegetable alteratives, iris, stillingia, corydalin, good diet, fresh air, good nursing, are valuable adjuncts.

In addition to constitutional treatment, it has been the practice of the profession to resort to a local treatment in order to subdue the inflammation; this has a salutary effect, often arresting and breaking up the disease where energy and promptitude are observed. There are numerous agents employed for this purpose. By the reformed profession the following agents are justly esteemed:

Veratrum, con. tinct. painted over the erysipelatous parts, and a little beyond, every few hours, will often arrest it; in some cases at once, and in others in four and twenty hours.

Con. tinct. gelsemin has analogous results, but not so striking as the veratrum.

A saturated tinct. lobelia, applied frequently by saturating a piece of fine linen cloth, proves very satisfactory.

Belladonna is my favorite remedy in erysipelas; it is so valuable that after you use it a little you dispense with most other remedies. If the disease is in the face or scalp, veratrum or some other remedy should, however, be used by preference, although I have used belladonna without much constitutional effects.

It has decided therapeutic power. The best method of exhibition

is the tincture or extract diluted with glycerine; cloths saturated with this, applied to the affected part every two hours, will be found to allay the heat, soothe the irritation and itching, cause a subsidence of the swelling, completely remove the pain, and the vivid redness will fade in a few hours after the application; the inflamed skin will assume a pallid aspect, the symptoms will rapidly disappear. In the successful local treatment it is a good remedy, although it should not be used to the exclusion of constitutional treatment; indeed, diaphoresis, aconite, free secretions, iron, bark, stimulants I regard as essentials. It is not in simple erysipelas, however, that we witness the beneficial results of belladonna, but when there are vesicles under the cuticle from effusion of serum, when there is a tendency to abscess, it is useful. In the phlegmonous variety it generally prevents unhealthy suppuration and sloughing of the cellular tissue; in those cases in which the swelling becomes flaccid and the skin purple, and covered with vesications, when the cellular tissue becomes hardened, infiltrated with lymph, it is an effectual remedy.

As a local agent, iodine stands high in the estimation of some practitioners; its application over the whole surface of the affected parts, appears to exert a specific influence over the disease, that the earlier it is applied the more manifest is the result, and as often as the skin becomes pale from the vaporization of the iodine, it should be repeated.

Collodion and glycerine have been quite extensively used—ollodion and castor oil. Apply the following to the skin: two parts collodion to one of castor oil, say twice daily. A cessation of the burning pain and redness takes place. An ointment of sulphate of iron and glycerine, or the sulphate of iron and collodion. Iron, or the salts of iron, is a valuable preparation, on account of its compression and astringent qualities. A solution of the sulphate of iron, in the proportion of one ounce to a pint of water, or an ointment containing two drachms to an ounce of lard. The ointment is the most convenient of application around the head, face and trunk. Great care is, however, requisite in thoroughly pulverizing the salt before mixing. It should then be rubbed freely over the inflamed surface and a little beyond; it must be frequently renewed, and the skin kept constantly moist.

Slippery elm in poultice, or mucilage, is a very excellent application, so is the linimentum calcis, acetate of lead and opium, flaxseed, flour, elder ointment, celandine, brandy, sulphate of soda in solution.

Nitrate of silver, in solution, of various strengths, is still in use by some Allopaths, but it is a miserable remedy in this disease; common white lead paint is not a bad remedy when none other is to be found; under it the inflammation rapidly heals.

Creosote has met the anticipation of some members of the profession. Apply the purest creosote, with a fine hair pencil, over the whole of the affected part, and a little beyond. When this is done it will cause the parts to become white immediately.

Cold has also been resorted to, a freezing mixture of pounded ice and salt in a bladder, and applied to the part for a minute or two, until the skin becomes white; then apply to another part, and so on



until patches of the skin have become frozen; but upon the whole, it is a bad practice.

Some practitioners esteem it of value to limit erysipelas, thinking it is more manageable, although the utility of it may be justly doubted. If it is desirable to do so, the tinct. iodine, nitrate of silver, narrow blisters, &c., around the entire circumference of the diseased skin, at about an inch from the erysipelatous blush.

If the disease is in the arms or legs, elevation of the parts as much as is convenient, facilitates the cure remarkably. Never forget to allay restlessness, give the patient comfortable sleep. If there is great irritation of the stomach, with sickness and diarrhoea, repeated doses of the neutralizing mixture with leptandrin, xanthoxilin, geranin with fomentations or stimulants to the abdomen.

**INFLAMMATION OF THE CELLULAR TISSUE.**—This exhibits all the symptoms of cellular cutaneous erysipelas, with the affection of the skin.

A rapidly increasing swelling appears in one of the limbs or some part of the body. Its surface is tense, shining and usually pale. When pressed, it feels hard, resisting; but more frequently yields a semi-elastic sensation, hence the name boggy, quaggy. There is most excruciating pain, which in some cases is burning and throbbing, in others heavy and tensive. It is invariably attended with fever of the irritative typhoid character. The pulse is frequent, sharp, jerking, but has no force or steadiness. Anxious, haggard countenance, mind irritable and desponding, and at intervals slight delirium. Respiration is quick and laborious. In bad cases, low muttering delirium. Copious offensive perspiration, yellow skin, are the more prominent symptoms.

The predisposing causes are the same as in erysipelas.

The exciting causes are often of the most trivial character; if there be a constitutional predisposition to it, even a scratch, slight puncture, abrasion. This disease is often excited by bites of insects, the immersion of the hands in the fluids of dead subjects—it frequently comes on after a surgical operation—and in some hospitals prevails as an epidemic.

**MORBID ANATOMY.**—If we examine the parts affected at an early stage of the disease, the cellular tissue is found loaded with a limpid, reddish serum. In a more advanced stage, this fluid becomes thicker and less highly colored. Subsequently, the cellular tissue is found to be gorged, partly with a white semi-fluid matter, partly with a brownish, purulent sanies, which is mingled with detached flakes of sphacelated tissue. The muscles and other structures in the vicinity are discolored, softened, and the larger veins which permeate the diseased part, have their coats inflamed and are in a state of suppuration.

**DIAGNOSIS.**—This disease is to be distinguished from the common phlegmonous abscess by its having a smooth and level surface, without any tendency to point, also by the asthenic nature of the accompanying fever.

**TREATMENT.**—The indications of treatment are nearly the same as in erysipelas, and the only one so far successful. Stimulants, tonics,

food, ventilation, remedies to excite the liver, bowels, kidneys, skin, everything to keep up the vital forces, the sulphites, the bi-sulphites, permanganate of potash, internally; the local application of the sulphite of soda, ten to twenty grains to the ounce of water, is very valuable. I have also derived benefit from phytolacin; the sesqui-carbonate of potash answers well. The vapor of bromine exposed in the apartment, and everything suitable to the indications of the case.

## ULCERATION.

Ulcers are breaches of the continuity of the animal texture, being caused by disease or unrepaired injury.

**PATHOLOGY.**—The process of ulceration is somewhat similar to that of mortification, but it is more chronic in its progress; the exudation, instead of undergoing decomposition, exhibits an indisposition to pass into cell formation, but rather into progressive softening, disintegration and removal of successive layers. Ulceration may occur in two ways; it may either be preceded by inflammation of the ulcerating part, or by congestion, that is, by a distention of venous blood in the capillaries. The formation of an ulcer through inflammation, is precisely similar to the formation of an abscess; the only difference being that the former commences on the surface, the latter in the substance of a part. Ulceration generally consists in a combination of inflammation and congestion—that is, in the inflammation of a part already congested, or incapable, through weakness, of supporting inflammation without loss of life. Ulcers which begin through congestion may extend by inflammation.

**PREDISPOSING CAUSES.**—The tissues most disposed to ulceration, are the skin, with the mucous and synovial membranes. From these, it may spread rapidly or slowly to the other tissues. The cellular tissues ulcerate easily, but muscle, blood-vessels, and nerves, slowly. Tendons and ligaments are also very slow to ulcerate, but cartilage, bone, in certain circumstances, are very liable to it. The constitutions most liable to it are those which are debilitated by intemperance, poverty, tainted with syphilis, possessed of a strumous diathesis, or broken down by mercury.

The parts most liable to ulceration are those whose circulation is weak and languid, such as the lower extremities, and more especially if the return of their venous blood is in any way impeded by a varicose state of the veins.

Parts newly formed are more liable to ulcerate than those of original formation, and this is especially true, whether they have been produced in consequence of injury, as stumps, cicatrices, callus.

**EXCITING CAUSES.**—In constitutions or parts predisposed to it, the slightest irritation may be sufficient to produce ulceration.

Ulcers present many varieties, which may be classed under various heads. They may be in a state leading to reparation; they may have an imperfect form of development, or organization, under which they are incapable of healing, but not spreading; they may, under the influence of the destructive process, which originally formed them, and

which may be causing them to spread. The following classification will be found to include the large majority of them—*healthy, irritable, indolent, varicose, specific, &c.*

**SIMPLE, OR HEALTHY ULCER.**—Its surface has a florid appearance, without an offensive smell. The pus is laudable; the granulations are small, of a uniform size, healing spontaneously and regularly, leaving no trace of its existence. The edges are smooth, covered with a white semi-transparent pellicle, which is gradually lost in the margins of the granulations. A healthy sore of this description will be greatly diminished, by the contraction of the surrounding skin before any cicatrization takes place.

**TREATMENT.**—The plan of treatment is simply protective; if there be *much* discharge, a little dry lint, or the carrot poultice, or comfrey, and a little salve to protect it from the atmosphere, or if there be *little*, water dressing. The dressing should only be removed for the sake of cleanliness, and removing the fluid pus, but care should be exercised not to wash off the surface too freely, else the progress of cicatrization may be delayed by the removal of lymph. The air acts as a stimulant, and may cause inflammation. Hence the propriety of bland dressing. If the granulating surface is very extensive, or if all applications disagree with it, it may be expedient to form a scab on its surface; this may be done in various ways, by sprinkling over it some inert powder, so as to form a scab. If the granulations are too luxuriant, they may be touched with caustic, or sometimes it is advisable to cauterize the whole sore, in order to establish the healing process and form a scab; if this acts favorably, suppuration ceases, and cicatrization will be found complete when it is detached. For effecting the above, prepared alum, sanguinarin and myricin, hamamelin, and hydrastin, caustic lint, &c. I am very partial to the use of the latter agent in the treatment of ulcers. Caustics, as a general rule, should not be applied to healthy, granulating sores; their action is too severe, and even in solution their action is too transient. Caustic lint is prepared by soaking pledgets of lint in a solution of some caustic, and then drying them. This caustic lint applied to ulcers, of whatever type, produces a more permanent effect than the remedy in any other state. Different degrees of concentration can be used for the solution, as the activity of the treatment may require. Sometimes no other treatment is required, except the roller, which is an indispensable agent in all cases. If pus continues to form, a weak solution of permanganate of potash, or bayberry, or hamamelin should be used.

**INFLAMED ULCER** may be the healthy ulcer inflamed, from some cause, local, or constitutional, errors in diet, excessive exercise. Sores situated over projecting parts of bone or ligament, or over the bellies of muscles, are apt to assume this character.

**TREATMENT.**—Act on the secretions with podophyllin, leptandrin and colocynthin; enjoin perfect rest with the part in an elevated position. The part should be bathed with an aqueous solution of opium, or some other anodyne wash; then a slippery elm poultice, or the water dressing should be applied; the steam bath and counter-irritation are also useful. The secret of success is the use of remedies that

relieve, that produce an agreeable state of feeling in inflamed parts, as a means of relieving that sense of irritation in the organic nerves. If the pain is severe, relieve it at all hazards by the local and internal exhibition of anodynes. If the ulcer diminishes under these applications, yet its surface remains foul, dust the ulcer with finely powdered chlorate of potash, which will induce speedy cicatrization, but if the surface becomes healthy, it may be treated as an ordinary ulcer. If warm applications aggravate the pain, cold evaporating astringent lotions should be used, protecting the sore by oiled silk or simple dressing. If soothing measures prove ineffectual, as they occasionally will, recourse must be had to active constitutional treatment.

THE IRRITABLE ULCER is very sore to the touch and easily made to bleed—it is defined as having an excess of organizing action, with a deficiency of organizable material, so that granulations are too small, and are morbidly sensitive and vascular. It is superficial, wears a purplish appearance, discharges but little matter, and that of a thin, ichorous, or sanious appearance, and sometimes very fetid and corroding; it occurs most frequently near the ankle. It is very sensitive and attended with great pain, and produces often peevishness of disposition, together with thirst, rigors, nervous prostration, irritability.

TREATMENT.—The constitutional treatment is of the most importance; the system is generally out of order. If the skin is dry, an alkaline bath once or twice daily is demanded—an occasional alcoholic vapor bath. If the alimentary canal is much deranged, begin with an emetic, act effectually on the secretions; diaphoretics and sudorifics should not be neglected; then correct the abnormal state by tonics, alteratives, good diet, such as C. syrup of stillingia, iron, bark, hydrastin, amelopsin, and among crude remedies, the *scrofularia marylandica*, motherwort, are excellent. The irritability must be allayed, freedom from pain, blunt the sensibilities by large doses of hyoscinamin, and some good nervine at bed-time; rest, elevation and relaxation of the part.

In the local treatment, all sources of irritation must be removed, and soothing applications should be first tried, such as warm poultices, fomentation of hops, or a solution of opium, an infusion of lobelia; sometimes moist applications fail, lose their power; then dry applications are successful, simple flour, pulverized chalk. The best plan of treatment, generally speaking, is the application of a succession of mild stimulants, so as to alter the action and exhaust the irritability of the part. Weak lotions of nitric acid, sulphate and chloride of zinc, iodine, chlorate and permanganate of potash, lime water, solution of sulphate of iron, of rhusin, hydrastin, hamamelin, phytolacin, or ointment of Peruvian balsam, black salve, oxide of zinc. Sometimes a weak solution of caustic potash, followed by a poultice or water dressing, or if there is great pain, fomentations of an infusion of opium, conium or stramonium, moderate pressure with strips of adhesive plaster, or with linen spread with cerate and a bandage.

All these measures will occasionally be of service in the cure of obstinate and irritable ulcers. But it very frequently happens that an



application which first soothes the pain, will soon lose its good effects, and may subsequently become positively injurious.

**THE WEAK ULCER** is the opposite of the irritable. Its powers of organization are deficient. The granulations are large, pale, flabby and insensible, rising above the margin of the skin, and showing no disposition to cicatrize.

**CAUSES.**—This state of ulcer may be owing to debility of the constitution, but in the healthiest, granulations become weak if they are delayed in healing.

**TREATMENT.**—The indications are to augment the vital forces of the granulations, and to restrain their growth. Tonics, alteratives, liberal diet, should be resorted to, thorough hygiene, with brisk friction to the surface. If the granulations become too luxuriant, growing pale, flabby and long, they should be treated by such remedies as the following: a solution of sulphate zinc, permanganate of potash, alum, sanguinarin, phytolacin, rhusin, hydrastin, or they should at once be destroyed by an escharotic, or a scab may be formed by an exposure to the air, or by applying the caustic lint, or they may be shaved off with a knife, and then sprinkled over with alum calc. As a general rule, it is more beneficial to cause their destruction by over stimulation than by actual destruction. The formation of a crust or scab by the application of caustic, may, however, often be resorted to with advantage. At the same time, never forget pressure by strips of adhesive plaster, by the application of a roller from the toes upwards, compresses, everything to prevent languor of the circulation, especially if the muscles are wasted and flabby. If the patient is young, weakly, with great coldness, and tendency to oedema in the extremities, the limb might be immersed in tepid salt and water for fifteen minutes, twice daily, to which poppies or hops, or stramonium, might be added, and afterwards brisk friction carefully protecting the sore. The occasional use of galvanism is also beneficial.

**INDOLENT.**—This is the most common of all ulcers, occurring most frequently in the lower extremities, and in old male subjects. It has its origin frequently in a simple sore; one that has been neglected. It is the exact reverse of the irritable. The edges of the sore are everted instead of being inverted, rounded, thick, glossy, quite regular, of an ashy color. It is characterized by a deficiency of action, as well as of power. Sometimes it displays, however, a crop of fungous, weak granulations—the discharge is often scanty and thin. They are often stationary for a long time, but for any slight cause of irritation, may enlarge rapidly, by ulceration and sloughing; and even when they have made considerable progress in healing, the granulations and cicatrices, that have been months in forming, may perish in a few hours from some local or constitutional cause, or local injury. This kind of ulcer is the most important, as it is one that meets with but poor success at the hands of the Allopath.

**TREATMENT.**—The general indications are to promote vigor by good diet, tonics, hygiene, and to excite the local action by various stimulants. The patient should have good diet, fresh air, cinchona, hydrastis, moderate exercise, and when he is at rest, the affected limb should

not be permitted to hang down. We must not only cure, but it must be permanent, which can only be done by attending to the growth of the granulations, and improving the general health.

To remove fungous growth, mild caustics should be used, such as the vegetable caustic, or a number of pieces of lint soaked in nitric acid lotion, and over all a poultice, warm and soft. These applications should be changed twice daily, and continued till the discharge becomes healthy, and granulations begin to arise. It might be washed with a weak solution of bi-carbonate of soda.

If the parts around the ulcer be very hard, it may be well to dry cup, and apply strong liniments. Hot fomentations aid the softening process; if too much inflammation exists about the parts, confine the patient to bed, put him up small doses of podophyllin, colocynthin, and in the course of a few days, the sore will assume a healthy appearance, when the following mode of dressing should be adopted: some pieces of lint, saturated with the nitric acid lotion, or zinc lotion, or sulphate of copper lotion, or a solution of myricin, or an infusion of blood root, or the spirits of lavender comp., or the aromatic wine, or port wine and quinine, or some other stimulating agent should be put on the ulcer. Then strips of adhesive plaster (about an inch or an inch and a half wide) should be applied two-thirds around the limb, from an inch below the ulcer to an inch above it; and in the application of each strip, the edges of the sore to be drawn together with a moderate degree of force; then a compress of soft linen should be placed over the plaster, and latterly the limbs should be well bandaged from the toes to the knee, always observing that the bandage is to be applied most tightly below, and more loosely by degrees as it ascends.

If we stimulate too much, so far as to change the sore into an irritable, instead of an healthy ulcer, the usual emollient treatment will soon bring it down to the healthy standard. If the discharge is very offensive, it can be corrected by applying pyroligneous acid, or a lotion of the permanganate of potash. The oil of amber exerts a very good influence in bringing indolent ulcers to a healthy condition.

I have treated some very indolent ulcers with galvanism, very rapidly and quite successfully; it gives a new character to the granulations, under the stimulus of which they spring up, red, healthy, and quickly heal. A disc of silver, a little larger than the ulcer to be treated, is attached to a plate of zinc three times the surface of the silver, by a wire long enough to allow the zinc to be placed on perfectly healthy skin, above the ulcer, so as to allow the direct current of electricity to pass. The silver is placed on the ulcer, the limb is bandaged, or the adhesive strips are resorted to, so as to retain the plates in position, and to give uniform support; under the zinc, placing a piece of flannel, always kept moist, otherwise the current will not pass; water or diluted acid answers. By a modification of this apparatus, any sore might be treated; it is excellent for sore nipples.

If the ulcer is very callous, obstinately so, successfully encircle the whole circumference of the limb with the adhesive plaster, applying either the stramonium ointment, or the extract of phytolacca, or a com-

bination of the tinctures of myrrh and sanguinaria; the oil of hemlock, in combination with the sanguinaria, if the sore becomes painful and tender. I have found irrigation above the bandage very successful. If the adhesive plaster irritates the skin, it may be changed, and isinglass plaster substituted. This is made by dissolving isinglass in alcohol, and spreading the solution on silk, which readily adheres if moistened with a warm wet sponge. But, although plastering and bandaging will do in a large majority of cases, the immediate application to the ulcer will be frequently required to be varied; sometimes dry applications of zinc, alum, tincture of myrrh, and benzoic acid, or some of the balsams, or ointments, black salve alternately, with a lotion of blood root. On the circle of indurated ulcers, take twenty grains of iodide potassium, in half ounce of water, and apply for three days; then take stramonium ointment for three days, so alternate these articles, thus aiding the absorbents to take away the excess of deposits. If there are orifices or openings, a teaspoonful of vegetable caustic to half a pint of distilled water, and inject into the sinuses every time it is dressed. If granulations are exuberant, I have found the chlorate or permanganate of potash, a most efficient remedy. It is invaluable in foul, indolent ulcers; it is especially useful in cleansing, healing and deodorizing them. I have used this more frequently and with far better success, than any other remedies, in various potencies, to suit the case; and as it is always judicious to give tonics, I have given this agent with the best results; it is a tonic of the very highest value in all adynamic states; it is powerful in oxydizing or decarbonizing the blood when the liver and skin have failed in their functions.

The constitutional treatment is all important. The alkaline bath, the alterative syr. irisin, phytolacin, or any other medicine, the peculiarities of the patient may indicate.

Under the head of indolent ulcers are usually classed old sores, and chronic ulcers, all indolent in their character, and the question might be asked should they be healed. The question of healing an ulcer of twenty years' standing, admits of discussion; heal, and for ever discard the pernicious doctrines of any set of men who say otherwise; heal the ulcer by all means, for no bad result can come when the secretions and excretions are active; keep an active skin, liver and kidneys, and never fear the result. The treatment of those old ulcers does not essentially differ. My course of treatment, is a fomentation of bitter herbs daily, bandage the whole limb from the toes upwards, morning and night. Lotions are more successful, when used in alternation, stimulating and astringent washes, such as oak bark and zinc. Besides special attention to the skin, bathing and friction, sulphur bath, active secretions from bowels, liver and kidneys; whilst pursuing the treatment, put the patient on an alterative course, stiltingia and kalmia, dwarf elder, &c. Tonics must be occasionally given: the wine bitter, C. zinc, cinchona or tamarac. If the patient be of the scrofulous diathesis, give syrup iodide ferri, in alternation with ampelopsin, anti-scrofulous syrup, &c. Diet, rich in blood-elaborating elements, is indispensable.



**SCROFULOUS ULCERS.**—These usually occur in debilitated constitutions, and usually in clusters frequently upon the neck and joints. They originate in the cellular tissue beneath the skin. At first, there is hardening, without pain, then swelling, followed by imperfect and slow suppuration; the skin becomes blue and thin, and the aperture for the discharge has ragged edges, revealing a dirty gray surface, with no granulations. The integument is soon undermined, and the ulcers communicate. The pain is slight, and the discharge is thin and serous. The system sympathizes, and the result may be hectic.

**TREATMENT.**—Constitutional remedies should be steadily and vigorously persevered in. *Syr. iodide ferri*, quinine, anti-scrofulous syrup, *stilligia et sarsaparilla*, *irisin*, *ampelopsin*, *corydalis*, good diet, chops, essence of beef, fruit, baths of salt, iodine, muriatic acid, exercise in the open air. Active measures must be taken to get rid of the soft infiltrated tissue. Caustic potash must be freely applied, and then a poultice; upon its removal a slough will be found to have separated, and its surface to be firm and vascular, covered with heavy granulations. The sore may then be treated as a healthy one, unless a relapse, when the application should be repeated. Above all things sustain the constitution and support the cicatrix by a bandage.

**FISTULOUS ULCER.**—Fistula, or sinus, is only a variety of the indolent, and consists of a narrow channel, lined with a pale pseudo-membrane, which may or may not lead to a suppurating cavity. In all cases, the parietes of the tube are often dense and semi-cartilaginous. *Fistulæ* are produced when abscesses are not entirely healed from the bottom, when there has been some defect in treatment, as in not attending to bandaging, or in not providing a proper outlet for the discharge, or when there is some standing cause of irritation, as a ligature, a piece of dead bone, which keeps up a discharge of pus.

**TREATMENT.**—The first indication is to remove any source of irritation, such as diseased bone, that may happen to exist; the second, to prevent the lodgement of matter, for which purpose openings must be made, and the third, to produce adhesive inflammation, to which the lining of the fistula is naturally indisposed. The means to be adopted are: stimulating injections of caustic potash, or nitric acid, or iodine, or *sanguinaria* in solution—tents smeared with some irritating ointment, caustic bougie, a seton, consisting of a few strands of silk, may be passed through the fistula, and may be gradually diminished as the passage contracts. At the same time, the sides of the fistula should be pressed with compresses and bandages. If all these means fail, the fistula should be slit up with a bistoury, and then a piece of lint be introduced in order to prevent premature union of the cut edges, and make it heal from the bottom.

If there has been a succession of small, unhealthy abscesses in a part, or if ulceration has spread irregularly in the tissue, so as to leave the skin ragged, or extensively undermined, with tortuous sinuses, the best practice is to use the caustic potash freely in a spirit of liberality to the whole diseased part. This will stimulate and arouse the adjacent parts, so that when the slough separates, a healthy surface is left, which is readily healed by the ordinary means.



**VARICOSE ULCER.**—This is dependent on a varicose state of the veins. This greatly impedes the return of blood, producing habitual venous congestion, weakens the parts, and renders them prone to ulceration. They are usually found on the lower extremity, and generally occur in groups of two or three near the ankle. In shape, oval, generally indolent in their progress, and neither extensive nor deep-seated, but are attended with a deep-seated, aching pain. Sometimes the ulcer is burrowing.

**TREATMENT.**—If a varicose ulcer presents the characteristics of the irritable, the first measures of treatment is to allay the irritability by some of the means already suggested. If, as is more common, it belongs to the indolent class, of course stimulants must be resorted to. The application of the vapor bath has also a very salutary effect, occasionally being extremely valuable in numerous cases. In strumous constitutions, the vapor of warm water answers well. Having treated the ulcer according to its condition, the next point is to get rid of the cause, namely, the engorged and feeble state of the veins.

For this purpose a strong decoction of oak bark, or marsh rosemary, or a strong solution of alum, or tannin; kino or catechu, together with stimulants, such as myrrh, myricin, xanthoxylin, &c., may be used.

In addition to these remedies, never forget strong compression by means of a roller or laced stockings; if the former is used, begin at the extremity of the limb, and carry it to the knee, making pressure equally on every part, tight below, and easier as it progresses upwards. If the latter is used, as it is decidedly to be preferred, there is no precaution necessary. If there is a constant desquamation of the cuticle, with serous discharge, the best remedy is the permanganate of potash lotion.

As to the radical cure of varicose veins, there is nothing to commend it to a scientific mind, neither the obliteration of the veins by a ligature, by the Vienna paste, nor any other caustic is attended with success. In all cases the elastic stocking is to be preferred, and, if possible, the mode of life of the patient should be changed from a standing to a sedentary one.

Constitutional treatment is of importance and should not be neglected.

**THE SLOUGHING ULCER** is formed whenever either of the varieties of ulcer is attacked with sloughing, which is liable to occur, if they are subjected to unusual irritation. The best applications to the limb are the vapor bath, or warm fomentations of stramonium or poppies, stimulating poultices of yeast and carrots, or the nitric acid, or the permanganate of potash lotion on lint, with a warm poultice over all, attending carefully to the general health, by the exhibition of hydrastis, bark, good diet. In the treatment of all varieties of ulcers in women, attention should be given to the menstrual function; have it active by all means, as nothing is so common as for the woman to menstruate through the ulcer, or the ulcer at that particular period to suffer in some way or other, and the menstruation to diminish.

**PHAGEDENA.**—This is of an irregular form with ragged abrupt edges, uneven brown surface, looking as if gnawed by the teeth of some animal; is attended with burning pain and great constitutional disturb-

ance; the discharge is serous or bloody, and often very profuse. It frequently assumes a sloughing form and then the discharge is fetid.

CAUSES.—Phagedena is liable to attack any ulcer, if it be subjected to extraordinary local irritation, or some powerfully depressing constitutional disorder. It is prone to attack venereal sores in consequence of filth, intemperance, meagre food, or if the constitution is enfeebled by mercury, or vitiated, or if the patient be scrofulous. It appears in some patients in the throat, with or subsequent to scarlatina or diphtheria; it may attack a blistered surface, if the constitution has suffered from some exhausting disease.

The treatment should be most energetic and be both constitutional and local; thorough hygiene in its most rigid signification, fresh air, extreme cleanliness, comfortable clothing, good diet, are also indispensable. Next important are tonics, bark, hydrastis in alternation with half-grain doses of the permanganate of potash, or the pyrophosphate ferri—tonics are indispensable. The patient must have sleep, comfortable rest, so as to soothe the constitutional affection. Lupulin, hyoscinum or morphia hypodermically; and locally destroy the whole diseased surface at once by the caustic potash, and follow with stramonium poultice, and when the eschar is detached, dress with the permanganate of potash lotion, or the black salve. Pyroligneous acid, chloride of lime, chlorinated soda, &c., are not as effectual as the above. Keep on with treatment rigidly till the patient recovers.

HOSPITAL GANGRENE, or sloughing phagedena, is the state of phagedena carried to its fullest extent, to perfection; a process between ulceration and gangrene. Its causes as developed in our great civil war, were in all cases traceable either to great local irritation, combined with a vitiated state of the constitution; or to contagion, that is, the application of poisonous matter to a wound; or to infection, that is, the reception of poisonous miasmata into the blood. This affection was quite common in some of the late military hospitals, passing under the name of hospital gangrene. It breaks out occasionally in our city hospitals, resulting no doubt from their want of sanitary means and imperfect ventilation.

When once generated, the diseased state may either be spread by contagion, this is by the contact of its morbid secretions, or by infection, that is through the medium of its vapor or effluvia; it may also occur sporadically, that is, may be induced in isolated cases, by improper irritating local or constitutional treatment of a wound.

SYMPTOMS.—It begins as a livid vesicle, at the edge of a wound or sore, accompanied with a stinging sensation, or it may first appear as a small livid spot on the sore near its circumference, and in other cases commences as a highly irritable and painful boil, with severe stinging or darting pains. In whichever way it arises, the disease soon spreads, and rapidly converts the whole surface of the ulcer into an ash-colored or blackish slough. The discharge, if at first healthy, is first diminished in quantity and sanious, but soon becomes profuse and dirty yellowish or brown. If arising from a local cause, the constitutional symptoms seldom manifest themselves before the third or fourth day. The most marked of these are tightness across the forehead, loss of

sleep, anorexia and febrile symptoms, and the wound assumes a darker, then a bluish tint and at last a black color, with a disposition to vesicate, whilst the rest of the limb betrays a disposition to œdema—all these threatening symptoms occur rapidly—the wound, whatever may have been its original shape, soon assumes a circular form. The sore now acquires hard, prominent edges, giving it a cup-like appearance, whilst the bottom of the cavity is lined with a flabby blackish slough. The rapid progress and circular form are highly characteristic. The discharge in the second stage becomes dark colored, fetid, and the pain extremely poignant. The face of the sufferer assumes a ghastly anxious appearance, his eyes become haggard and deeply tinged with bile, tongue coated with a brown or blackish fur, and in the last stage, hemorrhage from the wound, with incessant retching, comes on; coma, involuntary stools, hiccough close the scene.

When hospital gangrene is a local disease, produced by local contamination of a wound, it may be several days before there are any constitutional symptoms; if it be the constitutional form from the first, then we have the constitutional symptoms to precede the local disease.

TREATMENT.—The indications of treatment in sloughing phagedena, or hospital gangrene, are to destroy the diseased surface and its secretions; to correct the contamination of the system.

The first indication is to be fulfilled by means of caustics, amputations, &c., for the purpose of thorough destruction. The strong vegetable caustics, or the powerful mineral acids, are the best. Amputation is a dangerous expedient where the constitution sympathizes with the local affection.

In the general treatment, good diet, opiates, stimulants, are indispensable; let the patient be kept up with food and stimulants, and, above all things, give the patient sleep, and allay any vestige of irritability.

Remove the patient, if possible, from the seat of contagion; give him fresh air, let him have cleanliness, and, above all things, do not neglect to expose the vapor of bromine or chlorine in the room, or phenol sodique.

Never dread to give stimulants, alcoholic; give it freely, even though there is great irritability. See to the secretions; sponge the surface twice daily with lye-water, and attend to the bowels with neutralizing cordial and leptandrin. Begin treatment with an emetic if the cause is systemic; it is astonishing, the amelioration of the sore, and the unusual amount of bile and other matter after its action.

With regard to local remedies, if the ulceration be purely phagedenic, or if it be attended with little sloughing, and is painful, destroy it with bromine, and apply a strong solution of opium, or conium, or stramonium. Some apply plain water after the escharotic, but stimulating antiseptics, such as permanganate of potash are more serviceable. The Peruvian balsam, benzoic acid, creosote, rubbed up in glycerine, slippery elm, chlorine, chlorinated soda, charcoal and yeast, or indigo-weed poultice. On the separation of the slough, treat the sore on general principles, meet the constitutional symptoms, and control

them by vigorous means. Maintain the secretions, keep up the system by such agents as iron, bark, permanganate of potash, where they can be tolerated, and food when the stomach will bear it. Cases might be cited where the patients were actually rescued from death, by the administration of small doses of alcohol. My rule for the administration of alcohol here is, to give it as the nervous system is liable to be exhausted; give it, increase it, and leave it off on the return of the appetite for food.

## SCROFULA.

Scrofula may be defined as a state of constitutional debility, with a tendency to indolent, inflammatory ulcerative diseases, and to the deposit of a substance, called tubercle, in various tissues and organs.

Tubercular exudation occurs for the most part in young subjects, between the ages of dentition and of adult age; it may occur in all tissues, but is most common in the lymphatic glands, and afterwards in fibrous or albuminous texture, as the lungs and serous surfaces; its progress is slow, there is no disposition in it to perfect cell formation, but abortive corpuscles are formed in it slowly, and slowly break down; there is little tendency in it to absorption, but great liability to disintegration and ulceration; lastly, the local changes which it occasions, are always preceded by some derangement of the alimentary canal.

Scrofula is a blood disease, the blood-corpuscles are not only altered in shape, but their constituent elements are deficient, and this blood has a direct depressing or exhausting effect upon the power of vital resistance. Consequently, we have the scrofulous constitution, characterized by a fair and florid complexion, thin and delicate skin, with fine light hair generally; a large head, small chest, feebleness of the whole muscular system, which is of imperfect development. There is also a deficiency in those portions of the brain which are the source of muscular power. Some authors recognize two varieties of scrofula, asserting that they agreed on the chief point of constitutional debility, but that they are opposite in numerous essentials. Whatever difference may exist, is due to an entire disparity of temperament; in the sanguine or phlegmatic variety, the temperament stamps the identity.

In this affection, all the natural functions are liable to be performed irregularly; digestion is weak, appetite deficient, bowels torpid, the blood is thin, watery, its corpuscles are small, pale, and hence weakness, in all the tissues of the body.

CAUSES.—The predisposition to scrofula may be hereditary, the child inheriting a defective vitality, which manifests itself in imperfect elaboration of the blood, and enfeebled vitality of the organs and tissues, and these persons may live for years without any manifestation of the disease, simply because there is no further depressing influence to excite it. Parents entirely free from the scrofulous diathesis, may beget scrofulous children, if debilitated by privation or disease; if either of them is very young or old, or has labored under



the venereal taint, or been treated by mercury or arsenic, or if the parent has debilitated the organs, by masturbation, frequent copulation during pregnancy, &c., &c.

The scrofulous habit, if not congenital, may be created by anything capable either directly or indirectly, of lowering the vital energies; neglect of exercise, poor clothing, exposure, want of fresh air, poverty, poor food, acidity, intermarriage of relations, excessive mental exercise, too early indulgence in sexual desire, &c., &c. In this country, a very prominent cause is the use of patent medicines, and the system of medication by mercury, and the like; give mercury in any form to a pregnant woman, and the child will be strumous. Any depressing agency may be a cause.

**PATHOLOGY OF TUBERCLE.**—With respect to the origin of tubercle, it depends on a defect in the quality, vitality of the fibrin of the blood, which, when effused under certain circumstances, is incapable of developing within itself the germ cells of healthy tissues, and falls into a state of imperfect organization. Its most characteristic element is the deposit of a peculiar kind of unhealthy lymph, generally found in round masses, whence the name *tubercle*. It is deposited in various forms, in some cases round and irregular, or infiltrated through the tissues of an organ, or it may usurp the place of some organ. It is found deposited in these various forms in the lungs, in the follicles of the intestines, in the cancelli of bones, in the brain, in the pleura, in the lymphatic vessels and glands. It is a disease that complicates, in some way or other, the whole category of disease.

**SYMPTOMS.**—The first, most common and distinctive symptom of scrofula, is enlargement of the lymphatic glands, especially those about the neck. These enlargements or tumors may remain in an indolent condition for a long time, neither increasing nor diminishing in size, causing no pain or other disagreeable symptom. They may disappear, or suppuration may occur, and eventually discharge a thin, ichorous pus, mixed with cheese-like flakes. At first, this matter is discharged from several small sinuses, but eventually these combine, forming ulcers, with jagged and uneven edges, which are very indolent, healing slowly, and leaving unsightly scars when they do heal. Constitutional disturbance varies. In some cases, we have febrile action, with loss of appetite, arrest of secretion, hectic fever, prostration, night sweats, most generally, however, there is little constitutional disturbance, besides a loss of strength, deranged secretion, languor, and a peculiarly pallid appearance of the surface.

**PROGNOSIS.**—In most cases the prognosis is favorable, unless the diathesis is very strong, but otherwise it is amenable to appropriate treatment and measures calculated to improve the general health.

**TREATMENT.**—The treatment of scrofula is divided into both constitutional and local. The chief indications of general treatment, are to strengthen the system, and prevent local disease, by rendering the blood pure, the circulation vigorous, and by keeping up the secretions. The means are both hygienic and medicinal; the former are very important.

The patient should have a dry, well ventilated abode, an abundance of fresh air, large airy sleeping apartments.

The diet should be nutritious, digestible, capable of being rapidly elaborated into good blood; it should consist of meat, eggs, soups, beef essence, bread, farinaceous substances generally. Acids, or articles of diet, susceptible of creating acidity should be avoided strictly. If it is a child, improve the quality of the milk of the mother.

The clothing should be warm and regularly changed; flannel should be worn next the skin in all seasons, to protect the patient from the vicissitudes of the weather.

Free, voluntary exercise in the open air is indispensable, let it be child or adult; never exercising to fatigue.

The saline and alkaline bath should be used rigorously, daily, in alternation. An occasional iodine or sulphur bath is advantageous, say once a week. Friction to the skin and spine is essentially called for to promote the vigor of the circulation. Very much depends on getting a proper action of the great emunctories, the skin, kidneys and bowels. But in bathing or friction we must not over stimulate or exhaust, so that if the patient is very much enfeebled, instead of baths, oleaginous frictions to the entire surface, followed by soap and water; if the skin is very soft and flabby, sponging with water, medicated with nitro-muriatic acid or tonic bitter bark; if there is coldness, deficiency or languid circulation, sponging with diluted tincture capsicum.

Having attended to those essentials in treatment, we now must relieve the torpid liver and inactive bowels; for this purpose small doses of podophyllin, leptandrin and euonymin, should be occasionally given; if febrile symptoms prevail, aconite, to subdue it. If there is much acidity, an emetic of the C. powder of lobelia, once a week, is good practice, and to insure its efficacy, follow it with an alkali. If there is a disposition to diarrhœa, give leptandrin alone. As a general rule, regulate the bowels with the neutralizing cordial and juglandin, and if the stools are not properly tinged with bile, add euonymin or leptandrin. But in no case must the patient be weakened by an unlimited system of purgation; all remedies should be given with the view of increasing the vital forces and stimulating the secretions.

Serofula is most prevalent where the Allopathic treatment has prevailed; it is often the direct result of mercury, that accursed system which has impregnated and poisoned the very tissues of their dupes with this deleterious agent. But the trouble is, that the evil does not stop with the individual,—for where important elementary tissues are so deteriorated in the parents, a constitutional infirmity will be impressed on the offspring, which, if it be not serofulous from birth, is certainly the condition most favorable for the development of the phenomenon of that diathesis, whenever some co-operating influences attack the unfortunate patient. The interests of humanity, the honor of our profession, demand of us to protest against the use of this agent in any form.

Acidity is not only a predisposing, but an exciting cause, so that alkalies are of great use in treatment, not only by neutralizing acrid secretions in the stomach and bowels, but by altering the constitution

of the blood. They are specially indicated if the patient complains of heartburn, or thirst, or craving for food after meals. The very best results will be here realized from sulphite of soda or bi-sulphites, &c., and, at the same time, giving highly animalized diet. Chemistry has shown in a very interesting manner the reason of this fact, which is, that phosphates are passed in the urine of scrofulous persons to an extent much greater than natural; consequently, in such cases, avoid vegetable diet, which forms lactic acid, and tends to dissolve the earthy phosphates; and the persistent use of such an agent, as the sulphite of soda in large doses, to neutralize the acid in the system, is clearly indicated; but it does more, it gives tone and coloring matter to the impaired blood corpuscles.

Before noticing the various remedies that are used by our school in the treatment of scrofula, we would warn you to be on your guard when you hear of specifics. Always bear in mind that scrofula is an imperfect condition of bodily health, a deteriorated condition of the blood, whence an impaired vital force—generally coeval with the earliest period of embryonic existence; and it is therefore absurd to suppose that it can be rectified by any single remedy. True, if a medicine improves the appetite, and the patient gains flesh and strength, it may be persevered with; but if it causes febrile symptoms, emaciation, debility, &c., no vague idea of its specific virtues should induce the practitioner to continue it. To correct or modify the constitutional taint, give the comp. extracts of stillingia and sarsaparilla. This combination improves the powers of nutrition generally, and is specially indicated in strumous disease. It is of peculiar service when there is great weakness with great irritability; when tonics and nutriment cause feverishness; when the tongue is flabby and sore, and nothing seems to agree. This remedy, by all Eclectic physicians, has been justly considered an excellent alterative in scrofulous diseases;—in all diseases dependent on a degenerated condition of the blood. Among our most efficient and esteemed alteratives may be enumerated comp. syr. frostwort, comp. syr. celastrus, anti-scrofulous syr., sheep laurel. Among our concentrated alteratives we have many valuable agents, such as irisin, ampelopsin, corydalin, phytolacin, podophyllin, rumin, stillingia, &c., &c. In the administration of these concentrated remedies in scrofula, the best results are to be obtained in a tritured form—ten of the remedy to one hundred of sugar. These remedies, given in a pure form, are very apt to produce local irritation, very frequently causing them to be rejected, or producing constitutional symptoms, which very much lessen their therapeutic power. The dose must depend on the age and temperament of the patient. If the concentrated tinctures are the form, give them in water. In cachectic disease, like scrofula, syrup is an excellent form of exhibition, serving the purpose of combustion in the lungs and extreme capillaries, increasing the animal temperature, promoting secretion and excretion. By some the iodide of potassium is considered a good agent to be given in combination with these alterative syrups, but, in my experience, it is too deteriorating to the blood corpuscles. As a substitute, I prefer the iodide of sodium; a decoction of the *rumex crispus*, *alhus ser-*

rulata, scrophularia, walnut leaves, sarsaparilla, bitter tonics, the phosphites, the hypophosphites.

In alternation with some of the above remedies, *bark* will be found of immense benefit. When there is great exhaustion, and when it is desirable to make an impression on the system, it should be given in ten or fifteen grain doses in wine; and it should be persevered with. The comp. tinc. is a good form; in whatever way it is administered, its effects are quickly manifest, producing an exhilarating and refreshing effect on the system, which nothing can equal.

Iron is better adapted for permanent administration than bark, especially for pale, flabby children, whose liver and bowels are kept in proper action. Pyrophosphate of iron is a valuable preparation; indeed, there is no tonic which acts so promptly and favorably; prepared in a liquid form, easy to administer, rapidly absorbed, and does not produce fatigue to the digestive organs.

Iodine is sometimes of great service, given in an alkaline form, such as the iodide of sodium, begin with small doses, and gradually increase. Logul's solution and iodide of iron are of great use. In certain cases, iodide of sulphur is very efficient, accelerating the capillary circulation, and restoring defective animal heat.

Cod-liver oil is a remedy that deserves a trial; in alternation with the alteratives, it is very serviceable in some cases. The chloride of gold, in small doses, is also serviceable. Our vegetable tonics, such as hydrastis, restorative wine bitters, are much esteemed. The various combinations of vegetable tonics and alteratives are excellent; but of all medicines, iron is the most important, because it is an ingredient of healthy blood, and should be continued in some form, in small doses, for a long period. Pain in all cases must be relieved by hyosciamin, lupulin, chlorodine.

In the treatment, it must always be borne in mind that wholesome, nutritious food, pure air, warm clothing, are as important as remedies.

In scrofulous children we have a variety of skin affections; indeed, they are extremely subject to eruptions of small flat pustules about the ears and mouth and other parts, with extensive excoriations of the skin and exudations of their acrid matter, which dries into scabs. These eruptions are generally contagious.

In the treatment, the general health must be attended to, and the exhibition of alteratives must be enjoined; the comp. stillingia alt.; two or three drops in simple syr., is an elegant preparation, or the irisin or corydalin; and the local disease treated with the frequent use of soap and water, and an application of the wash of bi-carbonate of soda, or sulphate of zinc and hydrastin, or the tincture of sanguinaria and hamamelis.

CHRONIC SCROFULOUS ABSCESES are very prevalent, occurring in various forms, commencing imperceptibly in the cellular tissue, slowly inflaming, swelling, forming a hard red painless tumor. After a while it suppurates imperfectly and seldom gets well till the whole of the diseased part is destroyed by ulceration, or a small tumor of unhealthy lymph may form in the cellular tissue, which subsequently inflames, causes abscesses, and then sloughs out, &c.



To discuss any hardened tumor or enlarged glands, before active inflammation is manifested, apply a poultice of belladonna and stramonium, wet with comp. tincture of myrrh, or a plaster of belladonna. In some cases, the discutient ointment or tincture iodine may be more convenient, or the muriate of ammonia and strong alkaline lotions.

In incipient inflammation, a poultice of Indian turnip, fomentations of stramonium leaves, are excellent applications. Whatever external means are applied in these cases, they must be of a stimulating character. If it is seen that resolution cannot be effected, poultices must be applied to facilitate suppuration, and if pus has formed to any extent, instead of allowing it to burrow, we must immediately open the abscess. Open either with caustic potash or the lancet; wash out the abscess daily with a weak solution of vegetable caustic. In the treatment, we must be governed in some degree by the state of the ulcer. If it be well opened and no orifice connected with it, the following treatment will be found most effectual: thoroughly cleanse the ulcer with some alkali, then apply a paste or plaster as follows—bayberry tallow one part, white turpentine two parts, mix and melt over a slow fire, spread on linen, apply to the ulcer; making this the day dressing, and at night apply the black salve, or a poultice of the bayberry and elm. The bayberry is one of the most extraordinary remedies in scrofula, particularly in a state of ulcer, being seldom inefficient even in the worst stages. But if the ulcer be connected with a sinus or orifice, deepening into the cellular tissue, even to the bone, denuding the periosteum, and from this issues a thin or thick matter; when you have such an opening, keep it open and freely discharging by the use of tents made of India rubber tubing, and introduce the vegetable caustic as far into the sinus as possible. In addition to this, the sinus must be injected, by a proper-sized syringe twice daily, with a strong concentration of the bayberry, alternating with a solution of the vegetable caustic, a teaspoonful to a half a pint of water; other remedies may be used, as hydrastin, tannin, permanganate of potash, iodine, &c.

If the bone is diseased, which is known by the grating, which is communicated when probed, a few grains of the vegetable caustic must be introduced into the bottom of the sinus, and a solution of the same injected daily. If it assumes a malignant form, an excellent local application consists of a poultice of scrofularia marylandica, stramonium and lobelia. If the sore becomes callous or scirrhus, cauterize freely and substitute a poultice of finely powdered poke root.

If, at any time, the part should become distressingly painful, give cypripedin and hyosciamin, and apply a solution of lobelia or opium and stramonium to the ulcer.

These, or like means, in connection with the constitutional treatment recommended, have succeeded in numerous instances which have baffled the old school practitioners. Constitutional means are demanded imperatively; the local are merely palliative. Resulting as a sort of sequel from these, we have pustules, excoriations from the skin, formed by the ulceration of chronic abscesses, in which case we have exten-

sive tracts of the skin involved. The treatment is the same. Scrofulous disease of the bones, joints, eye, breast, testicle; scrofulous lupus and ozeana, caries of the vertebræ, and psoas abscess will be described in their proper place.

Scrofulous disease of the lymphatic glands, especially of the neck, is the most common and intractable of all scrofulous affections. The first step in the progress of this is a slight degree of inflammatory enlargement, which, if it does not progress, is followed by a deposit of tubercle. The glands are at first perfectly indolent and painless, stationary, or slowly enlarging, till at length, from some local irritation or disorder of the general health, they inflame and abscesses form between them and the skin. In some few cases, the abscess breaks spontaneously, the cyst contracts and heals, the glands remaining normal. But more generally, all the skin covering the abscess becomes red and thin, and ulcerates and heals up, leaving an ugly puckered cicatrix, but not till the whole gland has wasted with suppuration. These swellings often destroy life by compressing the trachea, or cervical vessels, or by bursting into them; sometimes they undergo a cure by absorption, by means of the chalky transformation.

TREATMENT.—The health must be improved by all the measures enumerated, and an endeavor made to procure absorption, by fomentations, by equal parts of belladonna, zinc and iodine, iodide of lead ointment, discutients, and, if suppuration occurs, the treatment for chronic abscess must be adopted.

TABES MESENTERICA, OR MARASMUS, consists of a tuberculous disease of the mesenteric glands and of the follicles of the intestines, analogous in its course and phenomena to the same disease in the cervical glands. The intestines inflame, adhere together and ulcerate, so that openings form between different convolutions, the peritoneum becomes indurated, and the intestines resemble a collection of cells rather than a simple tube.

SYMPTOMS.—It is usually preceded by a diarrhœa and gradually increasing prostration. Emaciation and voracity, swollen abdomen, hard tense skin, dry and harsh; the eyes red; the tongue strawberry colored; the breath foul, the stools clay-colored and offensive, sometimes costive, sometimes extremely relaxed. There is great irritability of the nervous system, occasionally there is congestion with effusion on the brain. In other cases, the appetite is impaired, desire for drink, with extreme prostration of strength.

The best treatment is animal food and other nourishment, given in small quantities and at short intervals. The hypophosphates of soda, lime and iron are the only remedies from which I have derived essential benefit; it would seem to amend the intestinal secretions. The use of cod-liver oil, when it can be given without nausea, or deranging the bowels, sometimes proves beneficial. Iron, with tincture of bark, tepid salt water bathing, stimulating liniments to the spine and abdomen, change of air, and a careful administration of anti-scrofulous remedies, such as the stillingia, alt. irisin, menispermin, hydrastin, hamamelin. In the treatment in the adult, the use of alkalies, with very small doses of leptandrin, have been successful. Ox gall is a

valuable remedy. Where we have acidity of the stomach, it is of the most decided advantage, giving effectual and immediate relief. The curdled vomitings, green motions, abdominal gripings, and restlessness usually disappear, and an improvement takes place.

## CARCINOMA.

Cancers, or malignant diseases, are maladies of constitutional origin, manifested by the formation of one or more morbid growths.

By a cancerous, as distinguished from any other kind of growth, we understand an aggregation of nucleated cells, the so-called cancer cells, round, oval, caudate, spindle-shaped, oblong, square, heart-shaped, or of various indescribable forms, produced by pressure on their sides. In size they vary from  $\frac{1}{1200}$  to  $\frac{1}{400}$  of an inch in diameter, infiltrated among the meshes, of fibrous stroma, or among the normal structure of an organ. Cancerous exudations generally present three principal forms, which result from the relative amount and arrangement of the cells and fibres forming it. If the fibrous element be in excess, it constitutes scirrhus, or hard cancer; if the cells be numerous, we have encephaloma or soft cancer; and if the fibres form loculi, containing a gelatinous or glue-like matter, in which the cells are imbedded, it is called colloid cancer.

Scirrhus presents to the naked eye a whitish or yellowish tinge; is dense and hard to the feel, and offers considerable resistance to the knife, and often crunches under the knife. On making a section of the growth, it is seen to be principally composed of filaments which vary in size and run in different directions, sometimes forming waved bands, at others, an inextricable plexus, among which, however, nucleated cells may be seen infiltrated.

Encephaloma also presents a fibrous texture, which, however, is very loose, when compared with that of scirrhus. In the denser parts of the growth, it closely resembles the scirrhus form of cancer, but often, where it is pulpy and broken down, no traces of fibrous, or, at most, only some fragments of them are visible to the naked eye.

The whitish, cut surface is often more or less mottled, with a pinkish, reddish, gray or black color. The first two colors are owing to the different degrees of vascularity. The reddish spots are owing to extravasation of blood, and are of greater or less extent; when very large they constitute what is termed, fungus hæmatodes. The yellowish color, when it surrounds extravasations of blood, is owing to the imbibition of its coloring matter; but where the color is spread in a reticulated form over the surface, or over masses, it generally results from fatty degeneration of the cancerous tissue. This yellow matter is usually of a cheese-like consistence, friable, and often resembles tubercle, for which it has been mistaken. The blackish tinge is owing to black pigment, infiltrated among the cancerous elements, or existing within the cells, and constitutes the malignant melanosis of authors.

A small portion of the cream-like fluid, examined under the microscope presents a large number of the cancer cells, and would seem to attain a higher degree of development than in other forms of growth.



The fibrous structure is the same as scirrhus, but the filaments are finer, more widely spread, while the pulpy cells contained in the interstices are correspondingly enlarged.

COLLOID CANCER consists of a fibrous structure, so arranged as to form areola or loculi; which are filled with a gray or amber colored matter, glutinous, sometimes transparent, at others opalescent or semi-opaque.

All forms of cancer are vascular, but in different degrees. Scirrhus is least so, but is still rich in blood-vessels. Encephaloma is always very vascular, and often to a great degree.

Cancerous exudations occur, for the most part, in persons of adult life; women, on the whole, are more liable to them than men; its immense increase after forty years of age proves it to be a disease of degeneracy. The disease may attack every tissue, and is most common in glandular or fatty organs, as the female breast; very apt to occur in the lymphatic glands; its progress, though slow, where fibrous tissue abounds, becomes rapid when corpuscles abound in it; there is a tendency to the formation of the most perfect cell life, having the power of self-development, and thereby spreading to neighboring tissues; and when, by pressure, ulceration is produced on free surfaces, it bursts through them in exuberant fungoid excrescences.

Cancerous exudation may be rendered abortive by means of good treatment; disintegration may take place, the animal matter broken down is rendered fluid, repasses into the blood, and then constitutes that excess of fibrin detected by chemists. The quantity will vary according to the amount of exudation, and the activity of the disintegrating process. In the blood, this effete matter undergoes a series of chemical changes, preparatory to its elimination or excretion, by the different emunctories, especially by the skin and kidneys.

CAUSES.—The development of malignant disease is undoubtedly due to some perversion of nutrition, which is not well understood, but which constitutes a diathesis that is frequently congenial or inherited—due to any cause that impairs the vital energy of the patient.

If this diathesis is strong, malignant disease may break out spontaneously in one or more tissues or organs—if not strong, its development may be aided by local irritation. Before the formation of a cancerous growth, two things must co-exist, namely, a certain morbid material in the blood, and some part appropriate to be the seat of a growth incorporating that material. The existence of morbid material in the blood constitutes the predisposition to cancer; the morbid material is the essential constituent of the diathesis. It is well to bear in mind that the essential material of the disease exists in the blood. Cancerous and tuberculous disease are incompatible, seldom occur together.

CONTAGION.—Cancer is a disease of constitutional degeneracy. The question arises, is it contagious? Well authenticated cases are recorded, of wives who had cancer of the uterus, where the husband had cancer of the penis, and it would seem possible that cancer may be transmitted from the wife to the husband during the act of copulation. At all events, we must grant that a transferring of cancer by



inoculation is possible. Two conditions seem to have an influence in producing or promoting the cancerous constitution, namely, climate and mental distress. But we are not sure as to climate; it may be due rather to differences in habits of life, as the wasting influence of a high state of civilization. It is, however, most decidedly apparent that mental distress is highly favorable to the production of cancer—true, it cannot generate a cancerous condition of the blood—true, also, that a cheerful temper and disposition are no safeguard against cancer; but cases are so frequent in which deep anxiety, deferred hope, disappointment, and hard struggle for existence, are followed by the growth or increase of the cancer; there is an affinity between cancer and depressed nutrition. But of the genuine cause which produces the cancerous material in the blood, we must confess that we are ignorant.

**COURSE OF CANCER.**—The normal course of cancerous disease is that of steady progress towards death. The increase is indicated by two different series of phenomena, to wit, increasing formation of cancer structures and of increasing cachexia.

It is usually deposited in one or more distinct tuberos masses, or else the cancerous material may be infiltrated through the tissues of an organ—there is a constant increase in its mass—a regular increase from the beginning to the end of the case, and this increase in formation, is accompanied by manifest indications of increasing cachexia. But this is not always so, for in cancer of external organs there may be no cachexia appearing till the local disease has made great progress. Cancer, once formed, increases in size by the perpetual development of new cells supplied from the degenerated blood.

**DECAY.**—After an indefinite period of time, the older portions of a cancerous growth lose their vitality and soften down, and the skin or mucous membrane covering then ulcerates, so as to allow of their discharge.

**VARIETIES.**—The chief varieties are scirrhus, medullary, epithelial colloid, osteoid, melanotic, hematoid, &c. The degree of difference between each of the diseases is scarcely sufficient to justify their separation, for they are undoubtedly identical, all made up of peculiar structures—cancer cells.

## SCIRRHUS CANCER.

**SYMPTOMS.**—Scirrhus usually commences as a round, hard (peculiarly so) tumor, subject to occasional fits of severe lancinating pain. Scirrhus is hard, heavy, resembling a lump of fibrous cartilage—in size seldom great—its shape depends on the parts affected; its cut surface seldom appears divided into lobes, but is one mass variously marked, but not partitioned, tough and tenacious, of a pale gray color, glassy, half translucent—pressure causes exudation of the cancerous juice; it is sparingly and irregularly supplied with blood-vessels. In all the chemical and microscopic elements, scirrhus and medullary approximate, and no doubt the opinion we have already enunciated is the true one; that it is an intermediate form of the

disease, and perhaps the terms acute and chronic cancer are the most consistent to use. Scirrhus is found to exist in great preponderance in women, in the ratio of 98 in 100, most frequently occurring between the ages of forty-five and fifty, or about the cessation of the menstrual discharge.

PROGRESS.—The progress of this disease is two-fold—it spreads and invades the adjoining tissues, and the older portions of morbid growth perish by ulceration. In the early stage of its progress, the hard cancer may not be painful at all, or gives only slight occasional pain, or is made painful by handling—that during its early stage it has no peculiar character; it may not be even lancinating, but dull and heavy, and that after a while the cancer becomes progressive and more painful—the pain darting and lancinating—and the pain gradually increases as the cancer grows more quickly, or is about to slough, and then when ulceration takes place the pain is intense, lancinating with a hot burning or scalding sensation. With the advance of the local disease, the cancerous cachexia develops itself, and the condition of the patient becomes pitiable. He is languid, depressed and emaciated, the complexion is leaden and sallow, the appetite bad, digestion imperfect. The glands are affected, features are pinched, lips and nostrils livid; the pulse is frequent, the pains are severe, and hectic prevails. In the hard tumors the pain is sharp and stinging; on the exposed surfaces, burning and sore. The vital energies are depressed by the absorption of deleterious secretions, and the patient may suffer from the disease in other organs. In the whole train of symptoms there are two, the first depending on the increased morbid and peculiar cancerous condition of the blood; and the second, the local disease, the effects produced on the blood by pain, discharge, hemorrhage, and various accidents.

DIAGNOSIS.—Its principal characteristics are hardness, lancinating pain, cancerous diathesis, the patient's age, the situation of the tumor.

PROGNOSIS.—The tendency of all cancerous disease is to destruction; still, with proper treatment, we do not regard the prognosis as unfavorable, for if a perfect cure is not attainable, retardation and improvement are almost certain.

DURATION.—Scirrhus is extremely slow in its progress; cases are recorded where it has proved fatal very quickly, and others where it has required a lifetime for its development.

## MEDULLARY CANCER.

The boundaries of medullary cancers can be very vaguely drawn; for, although they have peculiarities in structure and history which distinguish them sufficiently from scirrhus and other forms of cancer, yet define them by what terms we may, a series of specimens might be found filling every grade of all other forms. The term soft or encephaloid, brain-like, is most appropriate.

SYMPTOMS.—Medullary cancer usually commences as a soft, rounded, elastic tumor, growing rapidly, generally free from pain or

tenderness, and not circumscribed, or movable, but blended with the surrounding tissue. Being round, we generally find them variously lobulated, with partition between the lobes, derived from the investing capsule; these lobes are so complete that they appear like separate cysts, filled with indigenous growths. Their softness is peculiar, and very deceptive to the touch—a sense of fluctuation being experienced. The material composing these cancers is a peculiar, soft, close-textured substance, having very little toughness, easily crushed, and spread out by compression with the fingers. It bears a strong resemblance to a foetal brain. Medullary cancers may be found in various tissues and organs of the body, either separate, or as infiltrations, commonly met with in the testicle, bones, orbit, breast and uterus, &c.

Among the conditions favoring the production of this form of cancer, the peculiarities of sex often exert some influence. The peculiar liability of the uterus to this form of malignant disease, renders women, on the whole, more subject to it than men. It is essentially acute in its character, prone to occur at an earlier age than scirrhus. The hereditary influence, and other predisposing causes, are the same as in scirrhus.

PROGRESS.—In the growth of medullary cancer, we observe the following: their multiplicity in certain cases, their rapid rate of growth, and sometimes the occasional complete suspension of growth. Although it is undoubtedly the acute form of cancer, yet in no other form will an arrest, or complete suspension of progress occur, under proper treatment as this. As the medullary cancers grow, the parts about them generally yield; its circulation becomes vigorous; pulsation can be detected in it. There is not a great proneness to ulceration, its course is to the skin and outer parts, which soon become livid or purple, thinner and thinner, and the growth being rapid, it will ulcerate, the most projecting point giving way, and rapidly increasing fungus sprout from the aperture. The pain prior to ulcerating, is peculiar; fits of a throbbing, or aching, but not so severe as scirrhus. The exuberant fungus or growth being exposed to the influence of the external world, inflames, and is prone to softening, bleeding, ulcerating and sloughing. Through the constantly deepening cachexia, with which the increase in the medullary cancers is usually commensurate, and which is augmented by the various influences of the local disease, the usual course of the medullary cancer is towards death; and rapidly thither, even when the growth does not involve parts necessary to life, and still it is remarkable, there is no form in which a process of healing so often occurs.

The degenerations of medullary cancer are chiefly three: withering, fatty and calcareous degeneration. Its chief complications are equal in number, hemorrhage or apoplexy, suppuration and sloughing.

The effect of removal of this form of cancer, has been an increased duration of life; but the hope of curing any form of cancer by operation alone, should never be entertained. It may happen, but the chances are against it when the cachexia is strong.

DIAGNOSIS.—Medullary cancer is to be distinguished from scirrhus, by the absence of hardness and lancinating pain; by the great rapidity

of the growth; by its large size; by its acuteness and early decided cachexia; by its attacking patients of early life; by its disposition to fungate, rather than to ulcerate.

CAUSE.—Some unknown constitutional peculiarity.

### EPITHELIAL CANCER.

Epithelial cancer has its primary seat, with some few exceptions, in or just beneath some portion of the skin, or mucous membrane. Its most frequent locality is the lower lip, at or near the junction of the skin and mucous membrane; then the tongue, prepuce, scrotum, anus, &c. The distinctive or essential anatomical character of the epithelial cancer is, that it is chiefly composed of cells, which bear a strong resemblance to scaly epithelium. The most common appearance of this form of cancer, if examined prior to ulceration, is an outspread swelling, and an unnatural firmness or hardness of the affected skin. The width and length of the swelling are much greater than its thickness. The diseased part is enlarged, the lips, for example, pout and project, like one overgrown, and the swelling is slightly elevated, rising gradually or abruptly from its borders, and having a round, or oval, or sinuous outline. Its surface, previous to ulceration, may be nearly smooth, but more often is closely granulated, or tuberculated or warty, like the surface of a syphilitic condyloma, deriving its character from the enlarged and closely clustered papillæ. The surface is generally moist with ichorous discharge, or covered with a scab, or with a soft material formed of detached epidermal scales. The firmness or hardness of the part is variable. Commonly, it is morbidly sensitive, and the seat of increased afflux of blood.

Sometimes its extent is very small, at other times large, variable in form, upraised, cauliflower-like, or oval, in the form of a cone; some narrow, sterrimed, or pendulous growth, from the cutis; indeed, every sort and description of warty and condylomatous growth. But the same plan of construction exists in all, namely: a certain portion of the skin or mucous membrane is infiltrated with epithelial cancer structures. Among all the cancers, the epithelial presents the general or constitutional features of malignant disease in the least intense form. They commence about middle life; appear to depend on local conditions; they are the least prone to multiplication in the internal organs, and they are least associated with the diathesis.

When, however, the formation of an epithelial cancer has once commenced, its natural course is as regularly progressive to the destruction of life as the scirrhus or medullary form; only from the nature of the parts affected, the progress is different.

### VARIETIES OF CANCERS.

MELANOID, HÆMATOID, OSTEOID, COLLOID, FIBROUS CANCERS.—Of the different varieties of cancers spoken of, I am of the opinion that all may be classed under two heads—acute, or medullary; chronic, or scirrhus; and that all other deviations and variations are



due to the absence of certain constituents; although I do think a scirrhus cancer never becomes medullary or epithelial, neither does the converse happen. Combination, coincidence, succession, or interchange of their various forms may be found. The belief that all the various forms of cancer are modifications or varieties of one general disease or diathesis, is the one entertained by the author.

Melanoid cancers are, with rare exceptions, medullary cancers modified by the formation of black pigment in their elemental structures. Of this there can be no doubt. Their characteristic pigment marks them with various shades of iron-gray or brown, deepening into deepest blackness. The pigment is variously arranged in them. *Hæmatoid cancer* is merely a new name for *fungus hæmatodes*; soft, medullary cancers. Hemorrhage is the distinctive characteristic of this form of the disease. Leaving aside the term *fungus hæmatodes*, we employ that of *hæmatoid cancer*, for such as are like clots of blood, through the quantity of blood they contain. The difference is merely accidental, due to hemorrhage into the substance of the cancer, from rupture of its thin walled blood-vessels.

Osteoid cancer is the name of an ossifying fungus growth, consisting chiefly of bone, but has on its surface, and in the interstices of its osseous parts, an unossified fibrous constituent, as firm as fibrous cartilage. Osteoid cancer is an appropriate name, on account of its essential peculiarities. It is not only found in connection with bone, but in the areolar tissue, serous membranes, lymphatics, lungs, &c.

Villous cancer is a term which has been applied to growths possessing a papillary or villous form, with interspersed cancerous elements, which occasionally project from mucous surfaces.

Colloid cancer, or gelatiniform, cystic or gum cancer; colloid is the most expressive term, designating a peculiarity of diseased structure; a clear, viscid or flickering substance, like soft gelatine, usually found in various parts of the body, sometimes in large streaks over the entire surface.

TREATMENT.—In most cases of cancer there is a natural ebb tide, at first they grow rapidly, then slowly, then remain stationary, and at last begin to waste, and may even almost disappear. Sometimes the whole tumor may slough out and a spontaneous cure be effected, but these cases are few and far between. This is a disease that no time should be wasted, looking after impossibilities. The tumor is the natural reservoir of the morbid matter, and if this tumor be removed by the knife or by caustics, the morbid material is distributed over the whole system, provoking a return of the disease in all its most aggravated and uncontrollable forms. This leads us to consider the propriety or impropriety of using the knife in the extirpation of cancer. Being essentially a blood disease, all operations have been most unsatisfactory, unless preceded by two or three months' active constitutional remedies, as recommended for serofula; then in some cases good results have followed. Without this, excision by the knife seems to hasten the progress of the malady; inasmuch as absolute certainty of the freedom of internal organs from disease is unattainable; inasmuch as the dormant cancerous diathesis is often roused into

activity by the removal of a tumor; inasmuch, as cancers in an active state of growth, acquire increased energy by extirpation; and, inasmuch as the shock from the extirpation has been frequently the cause of death, excision cannot be undertaken without great risk of aggravating the general disorder. From these and other considerations, the knife should, as a general rule, be abstained from. The exception, or the circumstances under which an operation might be performed with some degree of hope, are, if there be little or no constitutional disturbance, nor hereditary taint; if the disease has arisen from injury; if it be movable, circumscribed, and free from adhesions to the skin or parts beneath, and especially if it be in the lip or bone, except the skull. My rule is never to operate if the cancer adhere to the parts; if it be extensively ulcerated; if the glands are affected; if the system sympathizes with the affection; if the diathesis is strong. But it might be justifiable if the tumor obstructed any of the natural orifices of the body.

Failing in the removal by the knife, we resort to other methods, such as caustics, ligature, where it is admissible, &c. The true secret of failures by the knife, is the want of prior constitutional treatment; is that small portions of more or less diseased substances are left behind; whereas, the immediate application of the caustic, whether with or without the knife, disorganizes every part with which it comes in contact, changes the action in the parts that are affected, and keeps up a drain that effectually withdraws contamination from the system.

Prepare the patient for the operation by blunting his sensibilities and procuring comfortable sleep, either by ether followed by some anodyne, as chlorodine, or a subcutaneous injection of morphia.

Caustics, if used, should be applied freely to the whole of the cancerous surface; destroy every trace of morbid matter, and the sound parts around for a considerable distance; be certain to extinguish every vestige of the morbid mass. We will mention a few of the favorite caustics:

Ter-chloride of carbon, as an internal and external remedy, is of great value. As a local application to open cancer, one drachm to a pint of water, relieves the pain immediately. Given internally, begin with two or three drops, in a little water, thrice daily. The effect is sedative, producing, in most cases, sleep for a long period; the cancer quickly sloughs away, the surface left having a healthy, granulating appearance.

Iodide of arsenic is used with good results, gr. iii; adipis, ʒi, applied to the cancer daily spread on lint. The surface soon becomes of an iron gray color, sloughs, the cancerous mass drops out, and usually leaves below a healthy sore, which heals kindly under the black salve and permanganate of potash.

Chloride of zinc, and indeed all the preparations of zinc and chlorine, are of great value in cancerous affections. Extensive cancerous disease may be treated successfully by the use of a paste made of one part chloride of zinc and three parts of flour, well mixed and moistened with water, and applied to the whole of the ulcerated part. Sulphuric acid, dropped on saffron or charcoal, forms an admirable caustic. The

powerful cauterizing effects of the acid are not destroyed; but, by the combination, a paste is formed which hardens into a crust shortly after exposure to the air. The peculiar properties of this caustic are its combining great power with facility of circumscribing its action, and the eschar thus formed, though deep, is quickly thrown off. The peculiar fetid odor is quickly destroyed, no absorption taking place from the rapidity of its action.

Another valuable agent is bromine, or the following:

R<sub>x</sub>.—Chloride of bromine, 3 parts;  
 Chloride of zinc, 2 parts;  
 Chloride of gold, 1 part.—*M.*

Apply for twenty hours, and follow with a lettuce poultice.

Solidified nitric acid is sometimes used with advantage—it is prepared by dropping highly concentrated nitric acid upon lint; a portion of this, of appropriate size, is placed on the part, and allowed to remain fifteen or twenty minutes; remove and dress with some astringent. The cauterization must be repeated daily, always removing the eschar previously formed. Chromic acid, sulphate zinc and copper, sulphate zinc and sanguinarin, made up in an extract of red clover.

Besides the common mineral escharotics which are so popular, there are others of a vegetable origin, which have the advantage of being painless, and, in certain cases of open cancer, have undoubted utility, such as oak bark, sanguinaria canadensis, tannic acid. If tannic acid is used, the strength of the solution is half an ounce of tannin to an ounce of water. This must be applied daily and freely, to the surface that is ulcerated—it will not cause any pain, and in a week or ten days the slough will be cast off, leaving a granulating surface behind. The cavity left will not be so large as we would expect, because the application draws the sound parts so close around the slough that they, as it were, push it out farther and farther. One of the very best caustic applications, consists of equal parts of chloride of zinc, sanguinaria and flour, made into a paste and applied to the part affected. If the cancer is non-ulcerated, the skin might be removed with caustic potash, and on the tumor so exposed, lay a thick layer of this paste spread on linen. Through the sloughs so produced, incisions are to be made with the knife, and strips of cotton spread with the same paste, introduced into it daily, till the whole tumor is converted into a large eschar, which drops out entire in twelve or fourteen days. To any secondary tumor, the following may be applied with good results:

R<sub>x</sub>.—Sulph. zinc, ʒi;  
 Sanguinarin, ʒiv;  
 Myricin, ʒiij;  
 Ext. opii, conii, aa. ʒi;  
 S. cerate, ʒi.—*M.*

It must ever be borne in mind, that an operation or caustics are

more likely to be successful if the constitutional treatment has been rigidly enforced.

It is a well-recognized principle in surgical practice, that malignant tumors or sores should either be allowed to remain free from disturbance, or completely removed, since tampering with them, by irritating applications, is the most certain means of exciting disease in the lymphatic glands, so that if caustics are resorted to for the destruction of these growths, let them be of such power, and so employed, as to strike at once at the root of the evil, and of all escharotics, the vegetable caustic is the best. In order to prevent its spreading over the sound parts, a solution of gutta serena in chloroform, applied to the skin for some distance around the part to be attacked, then a thin paste of the same material, with an aperture cut in it of the requisite size, and softened by exposure to heat, pressed firmly so as to adhere everywhere to the surface thus prepared for it—this piece is then glued round the edge of the opening, so that when supported by a stuffing of lint, it may form a wall inclosing the diseased part. Caustic potash is applied in quantity proportioned to the extent of the thickness. As the pain is great, put the patient under the influence of the following anæsthetic:

Alcohol at 95 per cent.,	1 part;
Chloroform,	2 parts;
Ether,	3 parts.— <i>M.</i>

After this, very little uneasiness is experienced, and the caustic may remain on several hours, when it will be found that the whole diseased mass, though covered with skin and several inches in depth, has been reduced to a cinder. Under poultices of yellow dock and poke leaves, or cicuta and poke leaves, the slough will separate in a few days, according to its depth, and the sore then heals, under the influence of such agents as a poultice of arrow-wood bark, white pond lily root, and poke root, or a lotion of carbolic acid and permanganate of potash. I have also found the manganese cum potassa very useful; it is a green powder, and readily applied by dusting it on. When used to any of these growths, it must be applied in a layer as thick as the tissue to be destroyed, and formed into a paste by dropping a little water on it, after which some simple dressing may be applied. By means of a carrot, or yeast or charcoal, or what I much prefer, a lettuce poultice, the eschar will drop out in a few days. It is less powerful than some caustics, but as effectual.

A very excellent plan of treatment consists in producing local anæsthesia by means of a frigorific mixture, or Richardson's apparatus, and then applying caustic or the knife. The removal of a cancerous growth, by means of congelation, unattended with pain, producing neither shock, irritation or debility, is highly esteemed by some eminent authorities. The usual mode of procedure is as follows: the tumor is congealed for two or three hours by a frigorific mixture, at a temperature of from 8 to 12 degrees below zero. The mixture must be frequently renewed, and confined to the part affected by a suitable apparatus. After its removal, denude the skin with caustic potash,



and then apply the zinc paste or other caustic. There is no pain caused by these proceedings, beyond a tingling sensation produced by the cold application.

If, therefore, the patient, from an unconquerable dread of escharotics, should prefer the frigorific treatment, or if the circumstances of the case should render that method eligible, it is useful. In all cancerous growths, the tendency is to excessive cell formation—we retard it by the application of cold; bring down the temperature of any growth below the vegetating point, and you kill it. The practice of local anæsthesia, or congelation, has been attended with success.

After the removal or destruction of a cancerous growth, the elm poultice, with a sufficient quantity of the bi-carbonate of soda, renewed frequently and well washed off with a solution of the permanganate of potash; this will arrest the fœtor better than pyroligneous acid, or carbolic acid, or chlorine, or baptizin, or phenol sodique.

When the diseased parts have been removed, and the healing process is tedious, change the alkaline poultice, and resort to the nitric acid lotion, or the permanganate of potash, or the expressed juice of cranberries or currants; an acid instead of an alkaline, acts very favorably as a stimulating alterative, but if any fungous granulations appear, resort to some alkaline combination, or increase the strength of the permanganate solution or pyroligneous acid.

An available remedy for cancerous and other tumors, is to be found in the inspissated extract of the field sorrel. Apply this on a piece of linen, after having washed the part with a solution of table salt, carefully drying with cotton; and this dressing to be done two or three times daily. When the pain and inflammation is too great, remove and dress with a thin poultice of slippery elm and bread; and when the pain and inflammation has passed, apply the extract as before, and continue until the tumor sloughs out. To prevent pain, sulph. morphia, in very minute portions, may be sprinkled over the part before the extract is applied.

There are numerous methods in vogue for the treatment of cancer; but none of these can compare with the treatment here laid down. The cause of failure is due, generally, to a want of a rigid constitutional treatment, or failure in the removal of pus as soon as it forms; hence the use of a large soft poultice of elm; hence the necessity of antiseptic agents; hence the value of a free opening with drains for the removal of disintegrated tissues.

As to the constitutional treatment: when cancerous growths become softened, portions of poisonous matter are taken up by the absorbents and conveyed into the circulation, and fever is the result. If the effort of nature, properly aided, is unsuccessful, dissolution takes place. Remedies, under such circumstances, tend to prolong life, in so far as they tend to purify the blood. No such elements as cancer exist in healthy blood. Cancer begins, and continues to grow, because there are certain elements in the blood which favor its growth. Its growth, its progressive enlargement, uses up its own elements, and consequently the blood is less full of them than if the growth did not take place; by this means the growth may preserve the health. It is

very obvious that the hope of an effectual and permanent cure, by means of an operation, is delusive; safety lies in a constitutional change, and that alone. No mere use of any one thing can cure it. Suppose we take it for granted that the ordinary natural process of decay and reproduction does not occur in cancer; that it were an unorganized mass, the case would be very different, and an operation would be of essential importance. Cancer has nutrient vessels and nutrition, its particles, after a certain time, become subject to the action of the oxygen and the absorbents; become softened and decomposed, and has a strong liability to decay and reproduction. Cancer is an organized structure, not endowed with indefinite vitality, and may consequently be absorbed.

Its hardness or compactness can be no objection to its absorption, for bone itself is often absorbed. But before the natural process of absorption could cause the cancer to disappear, the elements from which it is nourished must be removed from the blood, for cancer cells cannot exist in healthy blood. The primary object in the treatment of cancer, is to secure healthy, invigorating blood, before and after the removal of the tumor. It is true that the cicatrix may remain; but it undergoes reproduction common to living tissues, and it will disappear if the blood is deprived of its peculiar elements. To aid in the production of this constitutional change, the mode of life must be changed, and remedies and conditions essential to make a thorough constitutional change. We must ever bear in mind in treatment, that cancer depends upon, originates in, a broken down condition of the blood corpuscles, by which they are elongated, and take on other abnormal characteristics, by which they are rendered capable of passing out of the bounds of the circulation, and thus form morbid products. The whole basis of treatment must be strongly alterative. If the disease has existed long, made inroads into the patient's system, we find the various organs or glands diseased and torpid. The liver, especially, becomes very dormant, the skin inactive, the functions of both kidneys and bowels affected, and more especially is this true, if the patient be of the scrofulous diathesis. In this state we have a general cachectic condition established, and for the removal of it we would suggest the greatest possible attention to the skin. Medicated baths, of nitro-muriatic acid, or sulphur, or iodine, or strumatic salts, are as important as internal medication. Their daily uses should not be neglected. The bowels should be well regulated by a pill compound of leptandrin, extract conium and podophyllin.

Having thus attended to the skin, bowels, &c., alteratives are highly important, the comp. syr. stillingia, with irisin, kalmia, phytolacca, iodide of potassa, are indicated. I have used a strong decoction of the corydalis with success.

The corydalin, stillingin, rumin and irisin exert a most powerful influence in removing a constitutional taint; in effecting remarkable cures in cancer, and are perhaps the best constitutional remedies known for cancer. Some of these articles should always be given, and alternated with each other. After the system becomes habituated to one article, it should be discontinued at least for a while.

The various preparations of iron are always given with advantage, when the lips are pale, the pulse weak, and the patient emaciated. Cinchona and hydrastin exercise a very marked influence in cancer; they improve the general condition of the patient, and are excellent as an application to the ulcerated surface. Aconite is of essential benefit in the treatment of cancer. Its action has an ameliorating effect upon the circulation, increasing the nervous power, stimulating the pores of the skin, and it would seem to possess some peculiar power in modifying the constitutional ravages in cancerous degeneration. Cicuta, conium, cannabis indica, thuga, possess similar properties. Phosphorus, internally and locally, is a remedy of great power.

Iodine, in its various forms, deserves a fair and protracted trial. Diuretics and diaphoretics should not be overlooked. As a rule, the functions of the kidneys are too much neglected in diseases of a constitutional taint.

### FATTY DEGENERATION.

The name fatty degeneration, or fatty metamorphosis, is given to a certain class of cases, which, during life, are marked by anæmia, with great prostration, and after death are found to be distinguished by the more or less perfect transformation, into fat of various important textures, as muscles, bone, &c., but more especially the muscular fibres of the heart.

In a healthy condition of the blood, fatty or adipose tissue is stored up for the welfare of the individual, and it may abound in a transient way after digestion of certain kinds of food. But in the affection under consideration, fatty matter is present in abnormal situations; muscle and other important tissue being converted into this substance, although the system is far below a healthy standard, in consequence of which the most disastrous lesions often result.

A fatty degeneration of one or more of the viscera is often found after death, from long standing, incurable disease. Residence in tropical countries, and intemperance, are fruitful sources of this change. In certain diseases, as paralysis, deformities, spinal curvature, &c., the muscular structures of the part affected, may, and often do, undergo transformation, especially if the patient's health is below par. Besides, the liver and kidneys are peculiarly obnoxious to be thus affected; the hepatic cells in the *one* becoming enlarged and loaded with fat, oil granules; while the uriniferous tubules in the *other* are found to suffer fatty degeneration. But this malady is also liable to attack the walls of arteries; even the aorta is subject to take on fatty degeneration.

The disease or peculiar condition of the blood, which gives rise to this affection, seems to be intimately associated with extreme anæmia, excessive debility, and, as far as the heart is concerned, is frequently never detected till after death.

In the treatment of this affection, if detected during life, the remedies most useful are, *iron, phosphorus, nitro-muriatic acid, sulphite of soda, stillingia, gold, nux vomica, cactus grand, quinine, &c.*

## AMYLOID DEGENERATION.

For some years past, it has been well known that the liver, spleen and kidneys undergo a peculiar degeneration, which has received various names.

Whatever the particular substance may be, one important fact is understood; that in the so-called amyloid, or cellulose degeneration, we have a remarkable and peculiar constitutional disease, depending upon some defect in the elaboration of the blood—a diseased condition which invades numerous organs in the body, and renders them incapable of performing their functions.

The subjects of this affection are generally of a cachectic, broken-down appearance; they lose flesh and strength; dropsy supervenes; urine becomes in the latter stages albuminous; diarrhoea sets in, and the whole digestive canal becomes involved; and, in spite of all treatment, the patient soon dies.

POST-MORTEM.—This amyloid or cellulose matter is found in every tissue of the body, and assumes a blue color by the action of iodine; but if it is much mixed up with albuminous matter, the blue will become green. This starch-like substance is seen in various parts of the body; in the muscular fibres; in the vicinity and substance of arteries; in the prostate gland, nervous system, brain, &c.

When the liver, spleen or kidneys, are the organs affected, the influence of the iodine on the cut surface may render the part of a peculiar yellow color; though it usually assumes the blue color, if the application of the iodine be followed, by the cautious addition of a little sulphuric acid, so that whatever the substance may be, it is undoubtedly allied to starch. Besides, the gland is increased in size; bears a strong resemblance to a fatty liver, or kidney, and in handling them, the sensation is communicated, as if they were a piece of wax; and in making incisions, the feeling is communicated, as if the knife penetrated a piece of wax; and if the disease be extensive, no trace of normal structure can even be detected, on account of the amyloid matter being deposited within the interstices, and among the secreting cells.

When this substance is deposited on the secreting surface of the intestines, we have the most excessive emaciation, and latterly diarrhoea. If amyloid degeneration attacks the lymphatic glands, the enlargement of them is progressive, and passes by some for scrofula. In some cases the glands become of an enormous size; have a peculiar elastic feel. They may form large tumors in the neck and groin. Often this disease in the glands is associated with the peculiar wax-like substance in the spleen, and with tuberculosis. Profound anæmia, excessive prostration, and final exhaustion, are the symptoms. The lymphatic glands and spleen are intimately connected with the blood-manufacturing process. If their function is impaired by a deposit in their texture, the most disastrous results will be likely to follow. Amyloid degeneration may exist alone, uncomplicated with any other disease; or it may be present in connection with tuberculosis, diseases of the bones, and syphilis. It may exist with fatty degeneration. In



phthisis, in the form of an hepatic affection, it is much more common than fatty liver.

This form of degeneration is intimately associated with disease of the bones, necrosis and caries, and also with syphilis.

The presence of sugar in that part of the circulation which lies between the hepatic and pulmonary veins may be connected in some way or other with the formation of one or more of those nitrogenous substances. All speculation on this point is at present highly hypothetical; and it is only from the progress of organic chemistry that we can hope to derive a satisfactory explanation of those transformations which go on in the blood and tissues, so that we may determine the laws regulating the production of the amylaceous and amyloid deposits.

## VENEREAL DISEASE.

### GONORRHOEA.

The venereal disease consists in the effects of certain poisons, generated and communicated by promiscuous sexual intercourse. It includes two distinct poisons, both of which may be manifested under gonorrhœa and syphilis.

Gonorrhœa is a specific inflammation of the mucous membranes, caused by the application of either of the viruses.

The specific virus does not differ materially in its physical properties from the ordinary products of inflammation, but contains within it the peculiar septic poison on which the disease depends; contact with this is essential to its production. It is true that this is usually acquired during sexual contact; but cases now and again present themselves where it has been contracted from a privy seat, towels, &c. The mucous membrane most commonly affected is the urethra, vagina, &c.

The whole course of a case of gonorrhœa may be divided into four stages:

**FIRST STAGE.**—Lasting from one to two days; a slight tickling or tingling at the orifice of the urethra, and a flow of a small quantity of thin, transparent mucus, or milk-like discharge.

**SECOND STAGE.**—This is the true inflammatory stage; the meatus of the urethra becomes red and swollen; the discharge becomes copious, thick, and milky, yellow or greenish; the act of micturition is attended with pain and scalding, whilst erections and chordee torment the patient at night. During this stage the most distressing complications occur, such as irritation of the bladder, inflammation of the testicle, prostate, &c.

**THIRD STAGE.**—This is the stage where we have sub-acute inflammation, where the above symptoms subside. There is a slight irritation in urinating, and the discharge of yellow matter continues. This stage is sometimes protracted, and is liable to terminate in the

**FOURTH STAGE.**—*Gleet.*—There is usually little pain or irritation, but there is occasionally emission of a transparent or milky secretion. The discharge, at this period, is supposed to lose its infectious property, which is usually about the sixth week, but this is an error, for we have known the matter of gleet to produce violent urethritis.

The ordinary period at which a gonorrhœa appears after infection is from two to four days; it may be even earlier or later. Some constitutions possess the power of resisting the action of the poison to such a degree as to constitute an entire exemption from the disease; others again are so highly susceptible, either from natural organization, or from the abuse of stimulants, that the slightest touch of the contaminating poison speedily communicates the inflammation.

The disease almost invariably commences by a tingling or itching sensation at the orifice of the urethra, which is specially noticed when urinating. In a short time the lips of the urethra become red and swollen; the blood-vessels of the organ become distended; the inflammation increases, and extends up the passage for an inch or two; there is burning or scalding pain, on making water; an increased secretion takes place from the part affected, at first of a mucous character, but, as the inflammation increases, presenting a purulent appearance, of a yellow color, and if the disease is violent, green and sanious. The urine contains some thread-like substances, arising from the inflammatory action, and flows from the urethra in a diminished, spiral or divided stream.

When the inflammatory action prevails to a great degree, it prevents the extension of the urethra on erection taking place, so that the penis is crooked, denoting the presence of *chordee*.

In consequence of the violence of the inflammation, it occasionally happens, that at the time of making water, owing to rupture of some small vessels, a slight *hemorrhage* occurs. In consequence of inflammation, the prepuce also becomes so swollen at the end that it cannot be drawn back, constituting *phymosis*; or that being drawn behind the glands, it cannot be returned, giving us *paraphymosis*. Now and again, from the same cause, little hard swellings arise on the lower surface of the penis, along the course of the urethra; and these may suppurate, and form fistulous ulcers.

The neighboring parts sympathize with those already affected; the bladder becomes irritable, and incapable of retaining the urine for any length of time, which gives the patient a frequent disposition to urinate, together with uneasiness about the scrotum, perineum, &c. The glands of the groin become indurated and enlarged, or perhaps, the prostate, and testicles become swollen, inflamed, in consequence of which he experiences excruciating pains, radiating from the urethra to the loins; he becomes restless, and well-marked symptomatic fever may be developed.

In females, all the symptoms are lighter than in the male sex. Indeed, the similarity between this affection and leucorrhœa is so great, that it sometimes is a matter of difficulty to distinguish them. The diagnostic points are: *leucorrhœa* is gradual in its progress, may be traced to constitutional debility, dragging pain in the back and side; bearing down pain, general feelings of relaxation and debility: gonorrhœal inflammation is sudden and rapid in its approach; attacks individuals in the soundest health; the symptoms acquire their intensity in two or three weeks, heat in urinating, the discharge causes a deep-colored yellow or greenish stain upon the linen.

**PROGNOSIS.**—If the disease is left to itself, and the patient strictly prudent and temperate, a spontaneous recovery will eventually take place; but from improper medical treatment, undue exposure, excesses of different kinds, the disease often terminates in gleet, strictures, abscesses, &c. The duration of an attack cannot be estimated with accuracy. One case will get well in a few days, whilst another assumes the most aggravated character. A patient, broken down in health, or of a scrofulous diathesis, or of an irritable nervous temperament, will be most likely to suffer, and to have it protracted for an indefinite period.

**TREATMENT.**—Gonorrhœa, in its incipency, is a local disease, confined in its first stages to a small portion of the mucous membrane of the urethra, and with good treatment may be aborted. The average duration of the stage of incubation is about three days; then, the forming stage, where we have the commencement of the prickling, tingling, or itching sensation, with redness and swelling of the orifice of the urethra, slight oozing of mucous matter, which gradually becomes purulent, of a yellow or greenish color. This stage lasts about two days; when the acute, or active inflammatory stage, commences, with inflammation of the urethra, swelling and tenderness of the penis, change of the yellow or greenish secretions to a light transparent and ropy, or muco-purulent character. The natural duration of this stage, when proper restrictions as to diet, stimulants and exercise are observed, is from one to two weeks.

Our sole object in treatment in the early stage is to prevent or remove local inflammation, and neutralize a morbid poison, by the application of some agent capable of superseding the morbid inflammation—apply some positive agent to the diseased parts, to change their character. In the preventive period, occasional injections of the nitrate of silver, three grains to the ounce of water, or sulphate of zinc, four grains to the ounce of water; or permanganate of potash, two grains to the ounce of water. The occasional use of these injections will neutralize the absorbed virus before it can impair the function of the membrane with which it is in contact, and thus destroy its power. During all stages the diet should be light, unstimulating—all stimulating drinks and active exercise should be forbidden.

Even in the second or forming stage, a speedy arrest of the disease will sometimes be the result of good active treatment. We have seen that the symptoms of this stage are tingling or itching at the end of the urethra, with redness, swelling, increased secretion of mucus. The remedies for this stage, are either a saturated solution of nitrate of silver, or sesqui-carbonate of potash; a small quantity is to be applied by means of a small syringe; the solution should be delicately and quickly applied, and a quantity just sufficient, if the nitrate is used, to give it a white cast—if the alkali, enough to slightly discolor the part. This produces an alterative effect; a healthy inflammation, which subsides in twenty-four hours, effecting nearly always a permanent cure. By this mode of treatment we impress upon the affected structures a remedy which neutralizes and overwhelms the disease. Another injection which we have used with marked success is the per-

manganate of potash, equal parts of a saturated solution and glycerine. But if the patient is seen in the third stage, we must make an effort to overcome the inflammatory action by pretty large doses of aconite and gelsemin, alternated with either staphisagria, or cannabis sativa, acting also on the secretions; restricting the diet to the most rigid observance of vegetable and farinaceous substances, cold water for a drink, and prohibit taking much exercise. Frequent ablutions with cold water, every hour if possible, should be employed, in order to keep the parts free from discharge. Other local remedies may be used, as solutions of hydrastis, hamamelin, sulphate and chloride of zinc, bismuth, iron, quinine, borax, rhusin; or the following:

R<sub>y</sub>.—Morphia, gr. x;  
 Chlorate potassa, gr. xxx;  
 Aqua, ℥iv.—*M*.  
 Or, R<sub>y</sub>.—Sulphate zinc;  
 Morphia, āā., gr. x;  
 Aqua, ℥iv.—*M*.

For injection.

But if, notwithstanding the most thorough and persevering employment of means, the discharge still continues, recourse might be had to the introduction of bougies smeared with medicated cerates. The urethra should be well washed out with injections of cold water, and no injection should be passed until the patient had urinated.

INTERNAL REMEDIES.—*Cannabis sativa*, *staphisagria*, *cannabis indica*, *gelsemin*, *belladonna*, *cubebs*, *copaiba*, *iron*, *nitrate and bi-tartrate potassa*, &c.

*Aconite* is indicated where the inflammatory symptoms run high; *gelsemin* for the erections at night. When the active inflammatory symptoms have been mitigated by the aconite and gelsemin, give fifteen drops of the tincture of cannabis sativa every three hours; or this might be alternated with either of the following: tincture of staphisagria, or cannabis indica in six drop doses in water.

The general treatment will consist in attention to the bowels, the use of mucilaginous diuretics, with three or four drachms of acetate or citrate of potash in the twenty-four hours.

*Copaiba*.—All authorities agree on the merits of this agent in gonorrhœa; *cubebs* also exercise a specific action on the genito-urinary organs. An excellent combination of both remedies is the following:

R<sub>y</sub>.—Bals. copaibæ, ℥ii;  
 Spts. etheris nit., ℥i;  
 C. tinct. gelsemin;  
 Tinct. opii;  
 Tinct. iodine, āā., ℥i;  
 Cubebs, ℥i;  
 Magnesiae, ℥ii;  
 Mucil. acaciæ, ℥v.—*M*.

A teaspoonful thrice daily.

IRON.—Tincture ferri chloride, in water, should be given in debilitated constitutions; the pyrophosphate is most reliable; the essential



tincture of horse radish is excellent. The most perfect hygiene, general invigorating influences, change of air, temperance in all things, local and general bathing with tepid or cold water, are important adjuncts in the treatment.

As the following symptoms are only occasional consequences, generally the effects of irritation on the urethra, they are to be treated upon general principles.

**HEMORRHAGE FROM THE URETHRA.**—In cases of gonorrhœa, where the disease is violent, or spreads along the urethra, there is frequently a discharge of blood from the part. In such cases, where the hemorrhage is either slight or severe, gelsemin is the sovereign remedy, either alone or combined with lycopin; or *oleum erigeron*, given internally, has been of great utility. I have also been successful with lupulin and hamamelin, and packing the penis with cloths wrung out of ice water. I have also found turpentine of advantage internally, as well as the use of local remedies, as injections of alum, matico, perchloride of iron, rhusin, &c., &c.

**PAINFUL ERECTIONS.**—Gelsemin, lupulin, hyoscin, opium, internally, all have the effect of preventing painful erections in many cases. The *cannabis indica* and *staphisagria*, taken at bed-time, has produced most satisfactory results. The *cicuta*, also, is a good remedy. In that painful, neuralgic condition, the local application of gelsemin, with our vegetable alteratives internally, is of decided benefit.

**CHORDEE.**—At the commencement of this complaint, full doses of gelsemin and *veratrum*. Packing the penis is excellent; relief is experienced by exposing that organ to the steam of hot water. Poul-tices of belladonna, or lobelia, or *stramonium*, have beneficial effects, so have fomentations; all assisting in removing inflammation by the addition of gelsemin. Lupulin, gelsemin, camphor and opium, are of signal efficacy, lessening pain, removing inflammation, preventing erections, and obviating the immediate cause of the complaint. Bromide potassa is also effectual.

When the chordee continues, after the inflammatory or spasmodic symptoms are gone, we often have a deposition of extravasated lymph in the urethra, coagulated and organized, and the absorption of this must be our aim; for this purpose we may continue the lupulin with podophyllin and phytolacin, or *irisin*. Beache's discutient ointment, or a combination of *oleum erigeron*, *stillingia* and lobelia in alcohol; this latter combination is extremely useful applied to the parts, will promote the absorption of the extravasated lymph; or an ointment of phytolacin, *veratrin* and gelsemin, answers well. Iodide of potassium, iodine ointment, equal parts of tinct. iodine and belladonna. The local application of gelsemin is esteemed a specific remedy here. *Stramonium* leaves are excellent. Experience has shown that these agents have considerable power in exciting absorption. Friction alone, or with any of the above agents, will be of service. In some intractable cases considerable benefit is derived from the exhibition of remedies, *C. tinct. cinchona*, *C. syr. stillingia*, bromide of potassium, conium; galvanism may also be tried. When extravasation has occurred, the process of cure is progressive and uniform, as happens in a case of

ordinary inflammation. Depleting measures must be avoided, as they are invariably injurious, always do harm.

SUPPURATION OF THE GLANDS OF THE URETHRA.—This affection, though rare, occasionally occurs, and when it does, it heals kindly under the influence of rest, cleanliness, alteratives and tonics; meeting the indications as they present themselves.

PROSTATITIS.—Inflammation of the prostate gland is caused by extension of the morbid action from urethra. It is recognized by the constant desire which exists to pass urine, by the dull pain present in the perineum. In the treatment of this complication, apply the following to the perineum, by means of a piece of lint:

R<sub>x</sub>.—Chloroform;  
Alcohol;  
Benzine, aa. ʒi.—*M*.

Evacuate the bowels by means of podophyllin, colocynthin and jalapin, and afterwards use suppositories of belladonna or lobelia; and internally give cannabis indica and staphisagria; also, stimulate the secretions of the skin and kidneys.

AFFECTION OF THE BLADDER FROM GONORRHŒA.—When the disease extends as far as the bladder, it produces a most troublesome complaint, from which serious consequences sometimes arise; but it has frequently laid the groundwork of future irritation, which irritation has often given rise to ischuria, dysuria, &c., which have proved very troublesome, irritable, and in some cases dangerous. In such cases, the exhibition of populin, barosmin, hamamelin, hydrastin, iron, quinine, gelsemin, and nux vomica, are attended with unbounded success. Suppositories are excellent made of belladonna, so are anodyne enemas, if nothing forbid their use. The warm bath is very beneficial; warm fomentations to the perineum have a good effect. Depleting agents must not be resorted to—gelsemin is the sovereign remedy; next, mucilaginous diuretics, such as marshmallow with an alkali, or minute doses of nitric acid, or flaxseed tea, uva ursi, with populin, or barosmin, or iron.

As this affection of the bladder often continues for a considerable time, producing irritation in the neighboring parts, and is not in the least mitigated by ordinary treatment, I would recommend the following method of treatment in such cases: gelsemin is very valuable in alternation with bark, cinchonine, irritating plaster over the region of the kidneys, counter-irritation on the perineum, and the local application of stramonium over the region of the bladder, following with alteratives; small doses of nitro-muriatic acid well diluted in water. In the treatment of affections of the bladder, after gonorrhœa, the following will be found of great value:

R<sub>x</sub>.—C. syr. stillingia;  
Fluid extract of yellow dock;  
Fluid extract agrimonia, aa. ʒii;  
Iodide potassium, ʒsj.—*M*.

A teaspoonful every four hours.

If we have strong inflammatory symptoms, tinct. gelseminum and asclepias, in an infusion of verbasum, may be freely administered. Mucilaginous diuretics, with acetate or citrate of potassa, might be given in alternation. After controlling the acute symptoms, more stimulating diuretics, as the uva ursi, with nux vomica, buchu, pareira brava. If we suspect morbid accumulations, washing out the bladder with tepid injections of water, or glycerine, or chlorate of potassa and water. Some preparation of zinc or nitric acid, or hamamelin, make an excellent injection in these cases. Constitutional treatment must not, however, be neglected.

ISCHURIA ET DYSURIA.—The causes which give rise to these diseases are an inflammation of the urethra, occasioned perhaps by venereal sores, or acrid injections, or by inflammation of the bladder or kidneys, spasm of the neck of the bladder, excessive indulgence in spirituous drinks, gravel, irritation in the rectum. Perhaps a more frequent cause of both dysuria and ischuria is an enlargement or diseased state of the prostate gland, a complaint exceedingly common among the old men of our large cities. It is usually excited by full living, inebriety, excess with women, frequent excitement of the seminal vessels by masturbation, severe attacks of gonorrhœa, constipation, exposure. Indeed, whatever increases the circulation of the blood in these parts beyond the normal standard, may cause an impairment, the blood-vessels lose their tone in advanced life.

In *ischuria*, it is always advisable to guard against inflammation; gelsemin and aconite should be given in sufficient quantity, besides having recourse to the warm hip bath, emollient fomentations and mild enemas. If the suppression does not give way to these means, the patient should be put in a warm bath, if convenient, and if not, gelsemin in full doses in asclepias, might be given internally, with a suppository of belladonna or lobelia; then a catheter, well warmed, should be tried. When there is retention of urine, the introduction of a catheter is sometimes prevented by an enlargement of some part of the prostate gland; various manipulations must be resorted to. If a catheter cannot be passed, bougies may be tried with some hopes of success.

In every instance of the complaint, whether arising from stricture, gravel, inflammation or spasm, gelsemin will prove highly beneficial, and ought to be given in some form; it is extremely serviceable administered internally—doubly efficacious in an enema repeated frequently. Some cases of spasmodic stricture are relieved by cold, placing the feet on a marble slab, dashing cold water over the thighs and legs, the effect of which is almost instantaneous. If due to any lesion of the spine, strychnine, gelsemin and phosphorus. An excellent combination, is equal parts of tinctures of gelseminum and macrotys, in doses of thirty drops every hour, until the full influence of the remedies is obtained. In retention from spasmodic stricture, ergotine, lobelia, belladonna, galvanism, warm bath, &c. Dry cupping to the superior and internal part of the thigh is often successful. Placing a patient under the influence of ether or chloroform will at once relax a spasmodic stricture, and even if permanent, will allow the cathe-

ter to be passed. In cases that come on suddenly, dry cups to the loins, the hot stimulating hip and foot bath, turpentine, sweet spirits nitre, tinct. juniperi, an infusion of hair-cap moss, pulsatilla, lycopodium, and nux vomica.

If all means fail, such as the warm bath and remedies mentioned, the most patient and cautious manipulation with the catheter or bougies, anæsthetics, relaxing agents, such as lobelia, belladonna, should have a fair trial in alternation, or combined with gelsemin, internally and locally. Lobelia in marshmallow tea, three times daily, has proved an excellent remedy in many cases of dysuria. The tinct. ferri chloride is a remedy that often proves efficacious in suppression of urine arising from spasm, and may be given in ten drop doses, repeated frequently, until some sensible effect is produced. After a few doses the urine usually flows freely. The good effect of this remedy in cases of spasmodic suppression can hardly be over-rated.

In ischuria, more especially of a chronic nature, camphor, lupulin and populin, make a most excellent combination. In morbid conditions of the bladder, in which a suppression of urine is apt to arise, and recur frequently, the cypripedin, populin and hyosciamin, prove an excellent combination, beginning in medium doses, and gradually increased, according to the distress of the patient, and the effect produced. If we have a diseased condition of the bladder, depending upon some venereal taint, or otherwise, stillingia, irisin and populin will be of great service; but to derive their best results, we must give them in large doses and often repeated. Corydalin, phytolacin, gelsemin and barosmin have proved beneficial in these cases. Nitric acid, in minute doses, is excellent. *Injections* of soothing ingredients in the urethra, milk and water, anodynes; relaxing agents will afford relief, especially if the suppression has been occasioned by small pieces of gravel which have stuck in the canal. In both ischuria and dysuria, arising from gravel and stone, besides adopting palliative measures, radical means should be adopted for their removal. In desperate cases, where all measures are ineffectual; where *no* catheter or bougie can be passed; where *no* remedies are effectual; where imminent danger is apprehended from enormous distension of the bladder, recourse must be had to puncturing the stricture. As a prophylactic measure for those troubled with such affections, all exposures to vicissitudes of temperature, all excesses, all inordinate exercise, and every precaution against the venereal taint should be rigidly attended to. Those who are liable to suppression or difficulty of the urinary apparatus, either from stricture, real or spasmodic, will act prudently in wearing a bougie for an hour daily, and in attending carefully to the general health.

In enlargement of the prostate gland, the best means to resort to are the frequent exhibition of aconite and gelsemin, dry cupping, assisted by such remedies as podophyllin and irisin from time to time, enemas of lobelia or belladonna, the use of the hip bath at 96°; rest, avoidance of all means of irritation. The introduction of bougies or catheters should be dispensed with, as they are liable to produce dis-



turbance, inflammation and retention. In a more advanced stage of the disease, alkalies should be given, in such remedies as buchu, queen of the meadow, marshmallow; the bowels regulated by the neutralizing mixture; the diseased parts soothed by suppositories of hyosei-  
mus, or belladonna, or opium. Relief is frequently experienced by a tonic course, iron, quinine and nux; or eypripedin, hydrastin and populin; the hip bath, of common salt water at a low temperature, is an excellent adjunct.

In cases of irritation of the neck of the bladder and urethra, and in sympathetic irritation from disease of adjacent organs, we find an injection of opium is in many cases sufficient; an excellent formula is the following:

Ry.—Tinet. opii, ʒss;  
 “ gelsemin,  
 “ lobeliae, aa. gtt. xxx;  
 Aqua, ʒii.—M.

Use as an enema, and repeat frequently if necessary. Internally, no remedies are more effectual than gelsemin, maerotin, and tinct. chloride of iron, rhus radicans, arnica; locally, stramonium.

EPIDIDYMITIS.—The testicle frequently sympathizes with the urethra or bladder; generally, however, it does not occur till the acute stage of the gonorrhœa has passed. It is not due to metastasis, but to an extension of the inflammation along the ejaculatory ducts to the epididymis. At first the inflammation is limited to this structure, but it may extend to the body of the testicle.

Epididymitis, in the early stages, is most advantageously treated by perfect rest in the recumbent position. This is a good remedy—the horizontal position is not only the easiest, but it is the best for equalizing the circulation. If the patient cannot confine himself in the recumbent posture—that desirable position—the scrotum must be kept in a suspensory bandage.

In this complication, no particular method of cure can be laid down. It must be treated on general principles. The course of treatment that I have found to be the best and effectual is, an emetic at the start, and if the effect does not yield rapidly, a repetition of it on the third day. An emetic of lobelia I can recommend as of great service, and have known it to remove a swollen testicle almost instantaneously. The effect of emesis probably arises from some sympathy between the stomach and the testicle, and the peculiar nature of the lobelia. The exhibition of the C. podophyllin pill every night should not be neglected. At the same time disuent lotions, of which the chloride of ammonium, or acetate of lead and opii in solution, or tinct. of arnica, or equal parts tinct. belladonna and iodine, or muriate of ammonia, one ounce to six or eight of water, are the best, and one of them kept constantly applied. I have also found elematis, cieuta, belladonna and thuga useful. If induration occurs, the C. syr. stillingia et sarsaparilla, with the iodide of sodium or potassium, is to be administered internally, and the iodized glycerine applied externally. Some cases get along well by compression with adhesive strips, or by means of collodion.

Some cases, again, require not only the exhibition of the lobelia and podophyllin, but we must, where we have great constitutional disturbance, resort to aconite, gelsemin or veratrum, and apply anodyne poultices, such as stramonium, the patient maintaining the recumbent position. A local application of Pond's extract of hamamelis; one part of the extract to three of water, is esteemed. During the continuance of the inflammation and swelling, I have derived good results from acetate of potash, always giving an opiate at bed-time, such as lupulin.

Almost every case of inflamed or swollen testicle will terminate favorably by attention to the above treatment; but when, either from improper treatment, neglect, or any unfavorable circumstance, suppuration has occurred, the matter must be discharged by making an incision into the most dependent part of the abscess, and the remainder of the treatment must be the same as in collections of pus in other parts of the body.

If there be effusion into the tunica vaginalis, and the above remedies be not sufficient to create absorption, it must be drawn off. In cases of true orchitis, where the body of the testicle is involved, the pain severe, I have derived excellent result from irrigation, the continual dropping of cold or ice water on the part. Cold, applied to the scrotum by compresses dipped in water, is a powerful remedy, assuaging pain, preventing effusion, and hastening absorption; if it induces an uneasy sensation, the temperature must be raised from cold to cool, and continued till the cure is complete, at the same time giving nuxvomica, pulsatilla and aurum. Clematis is also a good remedy in the treatment of orchitis.

After reducing the inflammation and relieving all complications, hardness very frequently remains; poultices of hemlock or belladonna every night, and the use of stillingin and irisin internally, together with compression during the day, by means of collodion or adhesive strips, will be the remedies most likely to remove it.

In scrofulous cases, iodide of iron, with cod-liver oil, answers well. Epididymitis frequently follows a sudden suppression of the discharge, and experience has amply taught us that it is useless to recall the discharge from the urethra, as it exercises no bearing on the future progress of the case. The evacuation of the effusion into the tunica vaginalis in this affection is best performed by the ordinary hydrocele trocar, plunged perpendicularly into the bulging mass of the fluid, above and in front, and a few strands of silk allowed to remain, and one removed daily. Lotions of the acetate of lead and opium, or stramonium, applied after the operation.

EXCORIATIONS.—The matter discharged in gonorrhœa, being in all instances of an acrid and virulent character, is apt, by lodging between the prepuce and glans penis in men, and on the labia in women, to occasion an excoriation and ulceration in these parts. To prevent such consequences, it is right and proper to pay strict attention to cleanliness, by washing the parts several times daily with soap and water, following with a lotion of sulphate of zinc, or tannin, or alum, or permanganate of potash. When such excoriations take place, they

are best to be touched with nitrate of silver, or calc. alum, or sanguinarin, then use one of the lotions above mentioned, suspending the penis at the same time to the abdomen, by means of a proper bandage.

The inflammation of gonorrhœa may spread to the glans penis and prepuce, producing balanitis, posthitis, and balano-posthitis. If these do come on, washing with castile soap and water, the application of strips of lint moistened with a solution of permanganate of potash, or with glycerine, or with hydrastin in solution. If the disease persists, lotions of hamamelin, rhusin, sanguinarin, tannin, alum, sulphate of zinc, will be more efficacious.

**EXCRESCENCES**—Warty excrescences or vegetations now and then appear about the external organs of generation in both sexes, as a consequence of gonorrhœa. They are caused by the direct application of the gonorrhœal discharge to the parts in the vicinity of the genitals. They are of various sizes, appearance and consistence, adhering sometimes by a narrow base, and sometimes by a broad one. They occasionally attain an immense size, and are troublesome, from the pruritus they excite and their weight.

Wherever one or more ligatures can be applied, it is a good method for their removal—where, from the broadness of the base, or their being extremely numerous, they may be removed by chromic acid made into paste and applied. This I have found to be the best agent for their removal. Sanguinarin has succeeded well, and its use is often to be commended. Cause a slight abrasion on the surface of the excrescences, and apply it morning and evening. It acts as a mild escharotic, produces a considerable discharge from the surface, by which the excrescence is gradually sloughed off, without leaving an eschar. It gives no pain, and is seldom productive of inflammation, which not unfrequently follows the use of caustic potash, caustic soda, muriate of ammonia, bromine. Next to chromic acid, as a local application, I know nothing better than nitric acid. If the patient be scrofulous, or of the sanguine temperament, cutting them off with the knife, and cauterizing the surface with the acid, is often resorted to. Cleanliness is essential to their complete cure. In some cases, washing the vegetations with a solution of tannin, and then applying a layer of equal parts of savine and calc. alum, is attended with the most happy results.

**LINGERING SENSATIONS.**—The lingering sensations, the disagreeable feelings which sometimes continue in the urethra and glans, occur most frequently when the bladder has sympathized during the disease. These shooting neuralgic pains, and other bad symptoms, are merely a consequence of the original disease. These lingering symptoms vary much in their essential features; no one mode of treatment will be always proper. I have found a course of alteratives of decided value, stillingin, irisin, phytolacin, &c.; good results also follow cinchonine, strychnin and iron; and in irritable subjects, anodynes have magical power—hyoscinamin, lupulin, gelsemin. Stimulation, positive nerve tonics, such as xanthoxylin, cypripedin, scutellarin, electricity; in weak hysterical patients, hygienic measures are of value: the medicated bath, the shower bath, friction to the entire surface, exercise in the open air, agreeable associations; counter-irritation is of great

value applied to the perineum, over the region of the loins, sometimes over the entire spine. For the purpose of counter-irritation, I have used the following as a basis for plasters, it being more cleanly and more suitable of adaptation about the perineum :

R $\bar{y}$ .—Glycerine,  $\mathfrak{z}\text{i}$ ;  
Maranta, gr. xv.—*Mix.*

Heat to a temperature of  $240^{\circ}$ , and allow to cool. This is a plastic mass of extreme cleanliness, and one in which podophyllin, cantharides, sanguinarin, veratrin, quinine, morphia, &c., mix well, and one, also, that has remarkable adhesive properties. The insertion of a bougie often gives relief; dry cupping over the loins. Neuralgic pains along the urethra are often relieved with compression, either with strips of adhesive plaster or collodion. If scrofula be a complication, our alterative syrups, iron, glycerine, with iodine, internally, which is superior to cod-liver oil, must be resorted to. Locally, gelsemin is one of the best remedies in the *materia medica*.

GLEET.—In consequence of repeated attacks of gonorrhœa, and the debility of parts occasioned thereby, it not unfrequently happens that a gleet or small discharge remains behind, and proves more tedious and difficult to cure than the original disease. It would seem to have its origin in some constitutional defect, (aside from improper treatment of the original disease,) such as the scrofulous diathesis, inherent weakness, relaxed, depraved, or broken down constitution; if no evident cause, it may be due to stricture, diseased prostate. The cure depends chiefly on the removal of the cause. In recent cases the disease is easily removed; but in long standing cases, where the mucous glands have suffered much relaxation, or where there is a stricture or callosity, it is usually intractable. One of the most important points is the treatment of gleet, consists in ascertaining the cause of the discharge. Supposing that the gleet has been troubling the patient for some time, the most important proceeding consists in passing a bougie, to ascertain the condition of the urethra. It is now a well-established fact, that long standing inflammation of the urethra will produce thickening of its walls, as well as an irritable granular condition of certain portions of the canal, resulting in stricture, attended by purulent secretion from the surface. Now no internal medication will cure this local complaint. Experience having taught these facts, the first thing to do in all cases is to ascertain if, in any given case, this morbid condition of the mucous membrane exists. The common bougie may be employed for this purpose. The instrument, previously *warmed* and *oiled*, is passed along the canal until it meets with resistance; gentle force should be employed in the attempt to pass the obstruction. If the instrument does not pass, smaller sizes are used until the stricture is passed. The instrument is then withdrawn gently, and a stricture is thus detected by the instrument being held firmly from behind by the contraction. In slight cases of stricture, in the granular and in the spongy condition of the urethra, of which we are now speaking, no plan can succeed as well as this. Moreover, by measuring the distance on the instrument, we are enabled to judge of the



exact length of the change of structure of the canal. The form of gleet depending on this condition of the passage, becomes now one of the most tractable of affections, and readily yields to the introduction of medicated bougies. This is the form of gleet usually esteemed incurable. The introduction of bougies every day, or every other day, is commendable. I would strongly insist on their continuance in alternation with injections. Medicated injections of permanganate of potash, or sulphate of zinc, should also be used.

In the cure of a gleet by this method, we have no certain rules to guide us; six or seven weeks may be sufficient. With reference to medicated bougies and injections, it is better not to continue one remedy longer than a week; as injections, permanganate of potash, chlorate of potash, alum, hydrastin, rhusin, hamamelin, sulph. zinc; for medicated bougies, zinc ointment, black salve, belladonna oint., &c. If gleet is not due to some local cause, such as we have described, then we must look for some constitutional defect, impairment, peculiar diathesis, want of tone; and the primary thing in treating gleet is to remove this defect or impairment, alter or modify this diathesis, and impart tone; to strengthen the vital forces, and by no means depress; improve the tone of the constitution in every way.

If physicians would give tonics, build up their patients, there would be little time wasted in effecting a cure; our motto is to strengthen, invigorate the vital forces, avoid depletion, trust to tonics. If this state of things exist, one of the first things that must be done is to put the affected individual upon a nutritious diet, find some pleasing occupation for his mind, gentle exercise in the open air. The greatest benefit will be derived from cold plunge baths, shower baths, followed by frictions to the skin, with coarse towels or the hair brush. Internal medicines may be given with decided advantage, iron and quinine, hydrastin and iron; a pill, composed of two grains of sulphate of iron, and a half grain of quinine, may be taken three times a day; the ferri et quass., et nuc. vom., or oxalate, or citrate ferri, may be substituted.

The following may be relied upon:

R.—Iodine,

Ext. nux vomica, āā gr. v;

Hydrastin,

Quinine sulph., āā gr. xx;

Ext. macrotys, gr. x.—M.

Make thirty pills, one every three hours.

I have derived very excellent results from the concentrated agents; populin, hydrastin and hamamelin is a combination that has seldom failed; other remedies according to the indications. In the strumous diathesis, those remedies which are usually given in scrofula, stillingia, irisin, phytolacin, ampelopsin, collinsonia, with iron, or in alternation with some preparation of iodine, change of air, the sea shore, the sea bath. The eryngium aquaticum will meet our best anticipations in gleet. Hamamelin, in gleet, cannot be too highly rated.

Some cases will disappear immediately upon the use of some of the agents we have recommended in gonorrhœa, although, as a general

rule, they have no great power. Tonics, general and special; attention to everything which aims at invigorating the system generally. If the attempt at cure is to be effected by injections, permanganate of potash is the best. I have used the same remedy internally with great success; it is a potent blood tonic, imparting an immense amount of oxygen to the blood.

The following I have found a good prescription:

R<sub>x</sub>.—Potass. chlorat., ʒii;  
Potass. acetatis, ʒss;  
Liq. potassæ, ʒiii;  
Pulv. rhei., ʒss;  
Aq. dest., ʒviii.—*M*.

ʒi ter die.

R<sub>x</sub>.—Tinct. cantharides, ʒi;  
Tinct ferri sesquichloride, ʒii;  
Sulph. quinine,  
Acid sulph, dil., aa ʒss;  
Aqua dest., ʒviii.—*M*.

ʒi ter die.

Sedatives come in as useful adjuncts, and, in irritable subjects, may sometimes be depended on entirely; the best of this class that I have used, are cannabis indica, gelsemin and hyosciamin.

A teaspoonful of either of the following, I found excellent:

R<sub>x</sub>.—Tinct. of staphysagria, ʒii;  
Water, ʒiv.—*M*.

R<sub>x</sub>.—Pond's Ext. hamamelis, ʒi;  
Aqua, ʒvi.—*M*.

The specifics commonly spoken of have very little effect; irritating applications, either as injections or bougies, are not good; neither are irritating agents internally of any great value. Cantharides may be a solitary exception, given with some agent to modify it, such as

R<sub>x</sub>.—Tinct. cantharides,  
Con. tinct. xanthoxilin, aa. ʒss;  
Gelsemin,  
Strychnine, aa. gr. i;  
Syr. limonis, ʒiv.—*M*.

Dose, a teaspoonful morning and night.

Blisters, or counter-irritation to the penis along the course of the urethra, are not attended with much good, and are not to be recommended; although counter-irritation, in another part of the body, is almost invariably successful, and in obstinate cases, is deserving of a fair and prolonged trial. Old gleet that have baffled the ordinary methods, are often cured in this way; electricity has been successful in some cases.

The cure of a gleet must be made on general principles, by toning the constitution, and by altering the disposition of the part.

In whatever way a cure is effected, *rest or quietness*, agreeable associations, regularity and moderation in all things, in diet, in mode of living, in sexual intercourse. There is sometimes, after the patient is cured, a slight remaining chordee; to cure this, lupulin and camphor, electricity, the discutient ointment; if spasmodic, bark, hydrastin, gelsemin, &c.

The irritation of the bladder sometimes continues, which is annoying. This troublesome affection may be kept up by the bladder itself, by the prostate or urethra. If the disease is in the bladder, the pain is felt, after making water, for a short time. The cure of this symptom consists in the exhibition of small doses of nitric acid, alternating with gelsemin; in suppositories of anodynes, tonics, bark, nux, populin, and counter-irritation in the perineum and loins.

The tinct. ferri muriate, when steadily employed, produces great benefit in gleet; it is best given either with, or in alternation with a tonic, such as hydrastis, cinchona, frazerin, &c.

**STRICTURE.**—In consequence of inflammation and its effects, ulcerations, hypertrophy, engorgement, the folds of the urethra are apt to form projections; certain parts of it are liable to become contracted, and to occasion strictures, which cause the urine, instead of flowing in a free and direct stream, to split into two or more, or to be voided drop by drop. Various diseases, or mechanical violence, may produce inflammation of the urethra and cause strictures. Strictures of the urethra are sometimes simply *spasmodic*, due to affections external to the canal; sometimes due to *organic changes* in the canal. Strictures, properly speaking, may be divided into two classes: *true permanent stricture*, arising from an alteration in the stricture of a part of the urethra; the other to spasmodic action, although in some cases both are combined.

In permanent stricture, the patient seldom complains until he has some difficulty of micturition, symptoms analogous to stone or gravel. The disease generally occupies no great length of the passage, does not arise from an equal contraction of the urethra all round; generally from a contraction on one side. In some cases there are more strictures than one; three, four, and as many as six have been detected. They are more troublesome in cold than in warm weather. Sometimes the whole calibre of the canal is diminished in size.

The usual way to get rid of strictures of a permanent character, is by a regular and persevering use of bougies; and were all such as are afflicted with these complaints not to neglect this remedy, we would seldom, if ever, meet with those dreadful cases of suppressed urine which sometimes occur. We have found a bougie, made of the dry bark of the slippery elm, to possess very many advantages. By holding it in warm water for a few minutes it becomes mucilaginous, passes with great facility, and, by permitting it to remain a few minutes, it expands and dilates the stricture.

In making use of bougies, it is indispensable for success to attend to general rules.

Begin with one of small size, and increase it very gradually; but, previous to its introduction, have it warmed and oiled, bent in the

shape of a catheter, so as to adapt it to the curvature of the urethra, by which means its passage will be facilitated.

Employ no force in introducing it; but, where we meet with great resistance, be content with merely suffering its point to press against the stricture for a short time daily, with the hope that, by a persevering effort in this plan, dilatation of the contracted part may at last be effected.

To wear it at first for about half an hour daily, gradually increasing the time as the parts can bear it without irritation.

Never pass it into the bladder, unless it be to ascertain the extent of the disease; merely carry it a small distance beyond the stricture or strictures.

Guard against its slipping into the bladder; avoid all exercise during its introduction.

Continue to use it for a considerable time after the disappearance of the stricture; have recourse to it again on the least return of obstruction.

As an invariable rule, the knife should never be employed in any case when a thread cat-gut bougie can be introduced, *in any stricture that is pervious*. If a bougie can be passed into the bladder, stricture can be cured without cutting. There is not one case in three hundred, of very bad strictures, where the knife need be used at all. Dilatation by bougies must be combined with proper medical treatment; give remedies to promote absorption, such as iodide of sodium, or ammonium, and give cannabis indica to relieve irritation; give it alone, or combine it with gelsemin, or lobelin, according to the indications. Passing the bougie as far as the stricture, and allowing it to remain half an hour, with gentle pressure, will excite the absorbents.

If the stricture produces complete retention of urine, we must endeavor to pass bougies, in conjunction with the exhibition of lobelia or gelsemin, warm baths, an enema of tobacco, or a suppository of belladonna, with a strong solution of the extract painted over the penis; should these means fail, press a small catheter against the obstacle for an hour, and probably a small sized bougie may be afterwards inserted.

Arnott's method consists in the use of a tube of oil silk, lined with india rubber, to render it air-tight, and attached to the extremity of a small canula, by which it is distended with air or water, from a syringe at the outer end, with a stop-cock to keep it in when received. The canula may be of gum elastic, or of flexible metal used to make metallic bougies. The instrument is easily passed, and as soon as the bag is sufficiently within the stricture, as much water or air is to be injected as the patient can easily bear. The great secret in the use of a bougie, is to handle with the utmost delicacy, and twirl it gently between the thumb and finger when it meets with obstruction. The golden rule as regards the employment of dilatation, which must guide us both in regard to its extent, its duration, the interval between each repetition of it, is to exercise just as much pressure and dilating power as can be exerted without producing pain or uneasiness, or more than slight irritation, and not to repeat the process until any excite-



ment produced by the previous catheterism has completely subsided. Attention to this rule will conduce to a quick, safe, and successful result.

In my own private practice, I invariably treat stricture by simple dilatation, and avoid the use of caustics and incisions. So fully persuaded am I of the efficiency of the catheter, that I believe there is no stricture, however narrow, which will not admit of an instrument, provided it be sufficiently small, and be employed with proper care and patience; even in those cases which have been termed impermeable stricture. Having employed dilatation, and if I find the stricture rapidly reappearing in spite of treatment, I am partial to slight stimulation with sanguinarin, as an agent possessing many advantages in the treatment of this disease. A bougie is selected, the finer at the extremity, the narrower the stricture. By heating its extremity, it is so far softened that on immersing the instrument in sanguinarin, it adheres to the entire heated surface. The bougie, when thus armed, is passed into the stricture, and left there for twenty minutes or an hour, according to the period of treatment, the sensibility of the patient. After a few minutes a slight smarting is felt, but no other apparent effect is perceived. The day after this application, bougies of considerable size can usually be introduced, and a permanent cure effected in a short time. This stimulation of the urethra is attended with excellent results.

Gradual dilatation should be preferred in all cases; experience has proved that the result is more permanent. As a radical means of cure, dilatation has a permanent effect in hypertrophy, combined with softening of the tissues. If induration is well marked, callous, fibrous degenerations, true cicatrices or vegetations, success is less durable; we only stretch the parts, which soon recover their former state, when we cease to separate them by dilatation.

Gradual dilatation acts like compression, and produces simple resolution of the tissues, or excites a kind of purulent dissolution. Gradual dilatation should be preferred in all cases. *Caustic* bougies, we think, have no advantage over common bougies in respect to the permanent cure of the malady. Experience has fully proved that after a stricture has been removed, caustic bougies are still necessary. For these and other reasons, the treatment by caustic bougies has, of late years, lost much, nay, all of its former reputation. Surgeons of the Reformed profession generally prefer the treatment by bougies, which effects the same object, more slowly it is true, but on the whole more certainly, with less inconvenience and more decided, permanent results.

There are cases, however, that resist all treatment, the stricture being so complete as to cause a complete retention of the urine; cases where the urethra is thickened and contracted, and often complicated with fistulous openings; cases of bad strictures in an extremely irritable urethra; cases in which it might be advisable to relieve by operation, by means of the *lanceted stillette*, or urethral perforator. This instrument is passed down to the stricture, the exact distance of which from the extremity of the urethra is first ascertained. When the point of the instrument rests upon the contraction, which is known by

measurement, &c., &c., the stillette is then gently pressed forward, when the lancet is protruded out of its point, and is thus made to incise the stricture. The lancet must be immediately drawn back, and the instrument pushed through. Various modifications of this plan are in use.

I do not recommend this plan of treatment in cases where there is any passage, however small, through the stricture; but in every case where the contraction is so great as not to admit of the introduction of an instrument, this plan, in my opinion, offers a safe, speedy, and effectual mode of cure.

Various operations for the relief of stricture are in use; but none of them of any practical utility, and their introduction into the limits of this work would only tend to confuse and lead away the mind from what is really beneficial, to something fanciful and worthless. Perhaps the best instrument, aside from the old mode of gradual dilatation, is the use of Holt's dilator. In certain cases of obstinate stricture this instrument will be used with success. The instrument consists essentially of two steel blades, tapering to their extremity, when they become one, about the size of a small bougie. These blades are grooved on their proximate sides, and the groove contains a directing rod, over which the dilator slips.

The dilators are of several sizes, being merely silver tubes, which pass over the guiding rod, and separate the blades to any extent. In using this instrument, it should be first carefully passed through the stricture, and then a tube, the full size necessary, is passed in, forcibly separating the blades, and splitting the stricture. When a spasmodic constriction of the urinary passage ensues in or after gonorrhœa, which is usually known by its suddenly taking place, sudden interruption of the flow of urine, we are to have recourse to emollient application, such as fomenting with cloths wrung out of hot water, or an infusion of chamomile flowers, or poppies, or rubbing the penis with equal parts of tinct. opii and belladonna. Where these fail, a warm bath, together with the internal use of opium, or belladonna, or dioscorein, or belladonna as a suppository, should be employed. Belladonna, with proper auxiliary treatment, has been, and still is, a good remedy in cases of retention of urine in gonorrhœa from spasmodic strictures in the urethra. A few grains of the extract, either alone or with the dioscorein in a suppository, is the best plan of exhibition. To prevent a return of the complaint, a combination of gelsemin, dioscorein and nux vomica, may be given night and morning with very excellent results.

In suppression of urine from spasm, we have several very efficacious remedies, such as gelsemin, dioscorein, lobelin, strychnine, cannabis indica, &c., and an old but still a good remedy, muriate tinct. of iron, which give in ten drop doses every ten minutes, until some desirable effect is produced. Enemas of lobelia, tobacco, Indian hemp, &c., produce good effects; opium with the hot bath and an enema of belladonna. In obstinate cases of mixed stricture, counter-irritation in the perineum, with the above remedies, are indicated. *Rhus rudicans* has succeeded in my hands.

There are certain diseases, or morbid conditions, that are apt to occur in consequence of stricture of a permanent character.

The urethra, beyond the stricture, is frequently enlarged, distended in proportion to the force with which the bladder acts, and the resistance of the stricture. Its internal surface becomes irregular and fasciculated, and, if not relieved by some of the methods for the removal of stricture, nature endeavors to relieve herself by making a new passage for the urine; a source of much inconvenience and misery to the patient. Ulceration takes place near the stricture; the internal membrane and substance of the urethra are removed, the urine gets into the cellular tissue, diffuses itself, becomes the cause of suppuration, wherever it is diffused, a breaking down, first in the cellular tissue, then in the skin, making a free communication between the urethra and external surface, and produces a fistula, which is extremely troublesome to cure.

The best treatment in these cases: first try injections, or touch with the caustic potash, and, if these fail, an operation must be resorted to for its relief. I have found, in some cases, the use of bougies, and drawing off the urine with the catheter, successful in the cure of fistulæ. The caustic bougie is often of undoubted utility. There are numerous methods of operating for this fistula, all worthy of attention. Always bear in mind, that it is not always enough to restore the urethra to its former size, but that, to effect a cure, it is indispensable to destroy the organized fistula. The passage should be laid open like other fistulæ, so as to substitute for them simple wounds, susceptible of cicatrization. The method of using stimulating injections, say of nitric acid, chloride of zinc, sanguinarin, in the fistula, in order to excite adhesive inflammation, and in this way obliterate the sinus, is often successful, and, as conservatism in surgery is highly commendable, it is worthy of a trial.

Spasmodic affection of the urethra is a diseased or preternatural action, arising from some irritation. If the urgency of the symptoms are not great, it is proper to try internal remedies and external applications to remove it. The internal remedies consist of gelsemin, hyosciamin, belladonna, opium, bark, dioscorein, nux vomica, &c. The external applications are belladonna, lobelia, the warm bath, warm pedeluvium, bladders of warm water, counter-irritation, the occasional introduction of a bougie.

Paralysis of the urethra must be treated with counter-irritation to the loins or perineum, alteratives, with cypripedin, xanthoxylin, or with tonics, as populin, hydrastin, frazerin, &c. Belladonna and nux vomica as a suppository.

Excrescence or caruncula cause obstructions, and it is to be cured by the bougie. This is the only good method of treating this affection: bougies smeared with alum, immersing the instrument in finely pulverized alum.

In the treatment of enlargement of the prostate gland, *C. syr. stilgingia*, *irisin*, *phytolacin*, with iodide of ammonium, are valuable; with tonics, such as *populin*, *barosmin* and iron. In the strumous diathesis, hemlock, iodide of iron, salt water bathing, possess considerable

advantages. Counter-irritation and suppositories are indicated; for the latter conium, or belladonna.

In the treatment of paralysis of the bladder, from obstruction and pressure, cathartics, emetics are not to be neglected. Remedies acting on the nervous system, strychnine, gelsemin, cypripedin, cantharides, phosphorus, ergotine and arnica are the most potent; the tinct. of arnica, in doses of from forty to sixty drops daily. Electricity is sometimes of singular service when applied in such cases to the perineum. Benzoic acid, with populin and gelsemin, is a formula of some value. Iron, in the form of sesquichloride, three times a day, in infusion of quassia, stimulants, and counter-irritation, are useful; dry cupping over the loins. Through the whole process of treatment, the urine must be drawn off, the bladder not allowed to become distended.

In case of suppression of urine, where it is impossible to draw it off, or any remedy to mitigate or bear on the case, paracentesis vesicae must be performed. There are three methods of performing this operation, viz.: puncturing above the pubis, puncturing through the rectum, and cutting through the perineum. Of these three, we exclude the first as being the most dangerous, the most liable to lead to extravasation of urine, &c. If the stricture has existed for a long time; if the walls of the urethra have become thickened and cartilaginous, so as permanently to constrict and destroy the function of the canal; if, from the circumstances of the case, the stricture be likely to persist, I recommend cutting through the perineum as the operation that is most successful; but we must, in all cases, be guided by a consideration of the nature of the case.

GONORRHOEAL OPHTHALMIA.—See diseases of the eye.

GONORRHOEAL RHEUMATISM.—The pathology which considers rheumatism as a blood disease, may be considered, upon the whole, as correct, although we are not able to explain it by the symptoms. Our treatment of rheumatism is purely empirical. There is no doubt of the existence of the gonorrhoeal arthritis, gonorrhoeal rheumatism, &c., and it has been frequently attributed to a suppression of the discharge, although this is not essentially true. It is more frequent in males than in females.

I have tried the effects of special remedies in this disease, and watched a series of cases. I have tried aconite, and believe that that alone is of little service. I have used veratrum, colchicum, tinct. of blue cohosh, and believe that these alone have no utility. My favorite and successful method of treating rheumatism is by alkalies, aselepin, or sudorific drops in some stimulating tea, full doses of the acetate of potash, with an anodyne at bed-time; locally, warm alkaline packs. The employment of the acetate of potash, with diaphoretics, gives the most decided results. Colchicum and quinine, in full doses, every two hours, will often cut short an acute attack. The iodide of potassium, in the stillingia syr., answers well. Bathing the entire surface daily, with an alkaline wash, is always of benefit. Within this last year, I have been experimenting with the bi-sulphate of soda, in cases of gonorrhoeal rheumatism, with very good success.

*Gonorrhoeal inflammation* of the iris frequently supervenes in cases



with that peculiar species of rheumatism which frequently attends gonorrhœa. It very commonly alternates with affections of the joints, and an acute attack of synovitis frequently relieves the inflammation of the eyes. It is more frequent in scrofulous patients, laboring under gonorrhœa or gleet. The extreme frequency of the disease, its dangerous character, and the facility with which adhesions of the iris take place, render it necessary to keep the pupil dilated with atropia.

*The treatment* most successful consists in equalizing the circulation with aconite, podophyllin, irisin and bi-tartrate of potassæ, so as rapidly to affect the system, and the application of atropia. Our chief reliance is to be placed upon our alteratives, combined with quinine and iron; if there exists a rheumatic state of the system, acetate of potash, aselepin, colchicum, counter-irritation to the back of the neck. Conium, lycopodium, staphysagria, clematis may be tried.

A chronic enlargement of the testis, sometimes occurring alone, sometimes complicated with hydrocele, occasionally remains after the subsidence of the more acute symptoms accompanying a swollen testicle. For this affection, compression is of little use. The proper remedies are alteratives, iodide of ammonium, or potash, and the external application of the tincture of iodine, or the iodide of lead ointment. Irisin, pushed, is occasionally of great service in these consecutive diseases of the testicle and its envelopes.

In some constitutions, gonorrhœa leaves behind it a general weakness and irritability of the organs of generation, and an alteration in the character of their secretions. The semen is affected; there is a vitiated secretion, or a general want of power. With these symptoms there commonly exists weakness, trembling of the legs, general lassitude of the whole system.

In all cases of this description, before beginning treatment, it might be well to introduce a bougie, and examine the passage. A general course of alteratives and tonics, with salt water baths, shower bath, counter-irritation, &c., and attention to hygienic measures, are often successful.

As regards gonorrhœa of the rectum, I have never seen but two cases in my large private and clinical practice, and the treatment adopted appeared to me to be the only one applicable to the cases, namely, injections of cold water, weak solutions of sulphate of zinc, thrown up by a common syringe. Such remedies as permanganate of potash, exert a specific action.

**GONORRHŒA IN THE FEMALE.**—The internal remedies in the treatment of gonorrhœa are the same as the male, although their action upon the vaginal forms of the disease is very feeble. The use of powerful tonics, such as cinchona, C. tinct. tamarac, hydrastin, iron, &c., act well. The local treatment consists in fomentations and injections. In the chronic forms of the disease, unattended by change of structure, as local applications or injections, we may employ solutions of permanganate of potash, or tannin, or bark, or alum, or chloride of zinc, hamamelin, &c. When the discharge is offensive, and accompanied by ulceration, the solutions of the chlorides of soda, or lime, or baptisin, chlorate of potassæ.

When the chronic state of gonorrhœa in the female is accompanied by any alterations of tissue, these changes demand our first attention, since it is useless to attempt to check the discharge as long as these conditions remain upon which it depends. Ulcerations, or papulous granulations, should be cauterized by the nitric acid, followed with injections of hamamelin, hydrastin, or permanganate of potash.

As secondary symptoms may occur if the gonorrhœa has been syphilitic, and, as it is not always possible to say whether it is so or not, it is good practice to give the patient such remedies as will cause the eradication of the disease. No rule can be laid down on this point. A month or six weeks, perhaps, would be a suitable period to subject a patient to an alterative tonic course. This is the rule that I adopt: advising the patient, when she leaves off, to live regularly, to attend to the secretions, a bath three times a week, and to avoid all exciting causes, such as cold, or anything which interferes with the general health.

### BUBO.

Between a local and constitutional affection there often arises a kind of intermediate state, and that in consequence of *irritation* and *absorption* of venereal matter, the glands situated nearest to the parts affected are apt to become indurated, swollen and inflamed, and so give rise to bubo. There are two kinds of bubo recognized: one which attends simple gonorrhœa, arising from common inflammatory action, extending in the course of the absorbent vessels of the penis to the glands of the groin, constituting non-virulent adenitis, due to irritation; the other, a specific abscess, marked by the same characteristic as chancre itself, and the presence of this inevitably gives rise to the question of the virulent or non-virulent nature of the disease—always caused by the absorption of pus from the chancre. The former capable of resolution; the latter always suppurating. *Simple bubo, from irritation or leucorrhœal discharge, may terminate in resolution; while the virulent bubo, arising from a soft chancre, always suppurates.*

The chief points in diagnosis are:

1st. ADENITIS, OR SIMPLE BUBO.—The nature of the affection, it advancing slowly, and being unattended with pain. The gland enlarging and remaining stationary. It is soft, and if it suppurates, it does so indolently. Its pus is not *inoculable*.

2d. The *virulent bubo* is invariably of rapid growth; suppuration is early, the inflammatory action is accompanied with great pain. The integument covering the abscess, if not punctured, sloughs, leaving a large open sore—a true chancre. The pus from this bubo is *inoculable*.

The treatment for the first, consists either of repellents for the purpose of preventing the formation of matter, or of fomentations or poultices to produce suppuration, when that termination is threatened by nature. For this purpose discutient lotions, such as belladonna, subacetate of lead, chloride of ammonium, acetate of lead, muriate of ammonia, sulphate of zinc and borax, in solution, should at first be tried. These may be conjoined with pressure of a well-regulated

character by a truss. A very excellent method of applying pressure is by means of collodion; it should be applied layer after layer, until considerable compression is produced. The collodion has one objection, it does not admit of any other local application. It must be associated with rest.

The tincture and the ointment of iodine are valuable applications, and are more frequently successful than any other agent in causing restoration of the entire gland. For some years I have employed a combination of equal parts of tincture iodine and belladonna, applied by wetting a small piece of linen with it, and renewing morning and night. Another preparation which possesses decided advantages, is a solution of iodine and glycerine. The best formula is, to one ounce of glycerine add twenty grains of iodide of potassium, and then dissolve it in forty grains of iodine. These proportions may be altered as it is desired. The advantage of the iodide of potassium is, that it increases the solubility of the iodine, and should be about half as much in quantity; or an ointment made of phytolacin, stramonium and iodide potass.

The iodide of lead ointment is also a very valuable application to be made to these inflamed glands; so is the discutient ointment, so is an ointment made of phytolacin and lobelin. Ext. of belladonna with iodide of lead in ointment, or ext. cicuta may be tried. The muriate of ammonia in solution is valuable. A good prescription is the following, kept constantly applied:

R.—Chloroform, ʒi;  
Oil hemlock, ʒss;  
Tinct. iodine, ʒij.—*M.*

There are various other repellent remedies and methods of application in use, such as the application of small blisters, and then applying remedies; counter-irritation by means of a strong solution of nitrate of silver, three drachms to the ounce of distilled water, with twenty minims of strong nitric acid, applied with a glass rod or stick. The black eschar peels off in a few days, when it should be reapplied. Sedatives are often of utility, producing a marked effect upon the inflammatory swelling. I have also derived good results from mild purgation—podophyllin and leptandrin. If, however, all efforts to effect dissolution should fail, are we to allow it to open spontaneously, or are we to incise it? There can be no doubt that the latter is the best course to be adopted, and it should be done early, in order to save as much of the integument as possible. If the abscess is allowed to break, the skin sloughs extensively, an ugly sore is left, which is usually tedious in healing. There are several methods of incision resorted to.

A FREE INCISION—a method which cannot be too severely condemned. I would never advise to open by free incision, for, almost under every circumstance where this is resorted to, there is a quantity of integument in the edges, which will not unite with the granulating surface of the sore thus produced. By opening an abscess in this way, the whole anterior wall of it is destroyed, and the cure must be performed by the cicatrization of a granulating surface, which springs



from the floor or posterior wall of the abscess. The great object is to evacuate the matter first, then to diminish the disposition to its re-formation, and to procure union of the two sides of the cavity. The method of Vidal I esteem the best, which is practiced with a fine lancet, making several very small punctures over the thinnest part, perhaps six, eight or ten; through these the matter will ooze out till the cavity of the abscess is empty. Through one of those punctures the point of a very small glass syringe may be introduced, and a weak solution of the sulphate of zinc injected, in the proportion of two or three grains to the half pint of water, or the permanganate of potash in solution. When the abscess is quite empty, place over it a large compress of lint, and use moderately tight pressure by means of a roller. In the majority of instances, if the patient is kept quiet for twenty-four hours, either partial or total adhesion of the sides of the bubo, and a speedy cure will be the result; in some cases, however, this may not occur; but by the daily use of injections through one of the punctures, which should be kept open for this purpose, a cure will be effected in a few days.

Various substances may be used for injections besides the sulphate of zinc and permanganate of potash, such as solutions of iodine, of sulphate or acetate of copper, alum, port wine, sanguinarin, tannin, nitric acid &c.; they should be varied in strength to suit the feelings of the patient; a gentle warmth and slight irritation should be experienced, and if one remedy does not succeed, quickly have recourse to another. The great advantage of this method is, the healing process is more rapid, no formation of sinuses, and the best results attend it.

There is another method even better than the foregoing, and which has been used with very excellent results. It consists in passing two or three small setons through the base of the swelling. Several strands of silk are inserted with a common needle. The pus drains slowly off, a mild inflammatory action is produced by the setons in the walls of the abscess. Pressure is applied, and as the pus escapes, the walls of the cavity are brought into apposition. The setons are removed one by one, and it usually happens that adhesion takes place, and the cavity is obliterated. If this method is resorted to, pass the seton through the base of the abscess, not through the summit.

So much, then, for the treatment of simple adenitis, non-virulent bubo, the pus of which is laudable with no specific properties; therefore not *inoculable*.

A *Virulent Bubo* is marked by the same characteristics as chancre itself; a chancreous bubo, the pus of which is specific, from which true chancres are formed. A direct inoculation of the lymphatic gland with chancreous matter, carried to it by the lymphatic vessels. The bubo is a depot of chancreous pus. The main facts in regard to its symptoms and pathology are, that it progresses rapidly, is attended with pain, not only has a tendency to, but invariably suppurates. The treatment of this must essentially differ in every particular from the other variety. There is no use in attempting to discuss, no use of belladonna, nor iodine, nor pressure, nor purgation; all are injurious. What we most want is to hasten suppuration, which is accomplished



by heat and moisture; for this purpose various agents are used. Warm water, applied by means of several folds of flannel, and covered with oiled silk relieves the pain, hastens suppuration. The carrot poultice answers well, so does flaxseed, or bran in a linen bag, frequently dipped in hot water, and applied constantly. Chamomile flowers make an excellent application. After pus has formed in sufficient quantity, or, in other words, when the whole lymphatic gland has suppurated, lay the abscess open, so as to allow the freest channel for the escape of pus. Now arrives the main point in the treatment. We have said the virulent bubo goes on to ulceration; but this is not conclusive, for strumous ulceration often occurs in persons of a scrofulous diathesis. How are we to distinguish between the virulent and non-virulent, so as to be guided to a correct treatment. If you do not see the bubo at the start, if its history is unreliable, the best test is inoculation; charge the point of a lancet with a little pus from the bubo, and insert it into the thigh of the patient. If you have a chancreous bubo to deal with, a chancre will be produced at the point of inoculation, which must be destroyed with the caustic soda, or nitric acid, or Vienna paste, or sulphuric acid, or charcoal paste. In my practice, when the bubo puts on all the characters of a virulent or of specific action, I commence with the following formula, at the same time hasten suppuration:

R $\bar{y}$ .—Stillingia et sarsaparilla, C. syr., 0ss;  
 Con. tinct. iris versicolor,  
 “ “ phytollacca de., āā ʒii;  
 Iodide of sodium vel potassium, ʒss.—M.

A teaspoonful every three hours.

Having obtained positive evidence of the nature of the bubo from the inoculation, free incision, the application of the escharotic paste freely to the bottom and edges of the sore, or nitric acid, or bromine. After the application of the caustic, the part should be covered with lint, spread with the black salve, and bandaged. Another dressing which is good is the aromatic wine or tannin in solution, or solution of sulphate of copper and zinc, or weak solutions of the chlorides of lime or soda. Carbolic acid in glycerine, or permanganate of potash is useful as a local application. In eight or ten days the slough will come away, leaving a healthy non-specific ulcer, which heals without difficulty under an ointment of the oxide of zinc, or the black salve. The treatment of the virulent bubo consists in hastening suppuration, opening with a long incision, and the total destruction of the affected parts by the application of caustics to the interior.

Buboes, in scrofulous habits, or in debilitated or depraved constitutions, are very apt, if the treatment be erroneous, or diet meagre, or the patient subject to depressing agencies, to degenerate into phagedenic, which extend, in a short time, over a considerable space, and frequently lay bare a large portion of the thigh and lower part of the abdomen. There is really something very cheering in the beneficial effects of energetic measures in these cases. Nothing seems to be of any avail but a complete change of action; the part must be pro-

foundly modified, an entirely new stratum must be brought to light, the old one annihilated, and powerfully detergent and energetic constitutional measures pushed with activity. Nothing can supercede the free application of *bromine* in phagedena. If this agent is not convenient, strong nitric acid, followed by a douche, or what I like better, irrigation with cold water. This is an excellent application for phagedenic ulceration, followed with hydrastin, chlorate or permanganate of potash. Creosote and carbolic acid are excellent adjuncts in the treatment; best used in glycerine. After complete destruction, the parts should be fomented with an anodyne lotion, following that, permanganate of potash, or nitric acid lotion, with powerfully antiseptic poultices and anodynes at bed-time; in phagedena, let the patient have sleep, which is essential to success. Phagedena occurs always where some depressing influence is at work in debilitated constitutions, and requires a special treatment on that account—it is not sufficient here to exhibit our stillingin, smilacin, irisin, phytolacin, corydalin, &c., in alternation with the bisulphite of soda, or the permanganate of potash internally; the latter agents acting as decided blood tonics. Potent tonics are demanded—blood-elaborating diet is pre-eminently requisite—essence of beef, milk punch, cod-liver oil, &c. If there is great adynamia, with skin cold and clammy, rubbing the body twice a day with a coarse towel till the skin is red, bathing with whiskey and salt, or dilute tinct. capsicum, will help to promote a flow of blood to the surface. Quinine and iron have met with success; iron is the remedy; its effects are magical. The following is a good formula: potassio-tartrate of iron, one ounce; water, six ounces.—*Misce*. Two tablespoonsful three times a day. Whenever iron is used, it appears to be essential that the metal should be in a state of the protoxide. Phagedena depends upon a constitutional defect; rectify this by good diet, plenty of fresh air, attention to all hygienic measures, and mineral acid baths. Everything depends upon prompt and decided action.

## PATHOLOGY OF GONORRHŒA.

The term gonorrhœa is applied to a muco-puriform discharge from the urethra of the male, or vagina of the female. There are two varieties of gonorrhœa: *one* proceeding from the action of the secretion of an indurated infecting chancre on a mucous surface; the *other* from the action of the pus of a soft chancre on such a surface. These are the sources of origin of contagious gonorrhœa, not the only sources of infection.

It is now the opinion of the profession, that gonorrhœa and syphilis are different manifestations of one disease on different surfaces. This is now the established opinion of the most eminent pathologists, and is very generally concurred in by the more advanced members of our profession. Laying aside all unnecessary discussion, we are inevitably led to the following conclusions:

“1. That the virus of an infecting chancre, when deposited on a secreting mucous surface, may give rise to an inflammation of that

surface, attended with a muco-purulent discharge, without a chancre being necessarily formed, unless an abrasion exists; in which case, if the chancreous virus comes into contact with it, a chancre will, in all probability, be produced, and will co-exist with the general inflammation. That this is, essentially and properly, a syphilitic gonorrhœa, followed by constitutional contamination, and is contagious, and must be treated with the remedies which we have noted in systemic syphilis.

"2. That the virus of a soft, non-infecting chancre, when deposited on a secreting mucous surface, upon which there is no abrasion, generally gives rise to a muco-purulent discharge, and, if there be an abrasion, the liability to chancre; that both diseases may exist in one person; that the discharge from the inflamed mucous membrane is capable of giving rise to a similar discharge in other individuals, and that it is not followed by any specific constitutional symptoms. That the two sources named are the only ones from which a contagious gonorrhœa can originate; it may be transmitted, according to its kind, from one individual to another."

*Two species of gonorrhœa, corresponding to the two species of chancre—both are contagious—but that only that is due to the virus of an infecting chancre, is followed by systemic syphilis.*

That the matter of each of these species of gonorrhœa will, when inoculated, give rise to its own particular form of chancre.

That the muco-purulent discharges from the urethra or vagina, due to irritation, or some such cause, are not contagious; are simply cases of urethritis or vaginitis, having no specific characteristics.

I am fully convinced that this view of the subject is the correct one, to wit: that gonorrhœa is capable of producing a chancre of its own kind, and *vice versa*. For how often do we meet with cases of individuals who are laboring under constitutional syphilis, who never had anything but a gonorrhœa, and yet have an undoubted syphilitic papular eruption, loss of hair, &c.

In such cases, perhaps, the question might be asked: why, in a syphilitic gonorrhœa, is there no indurated bubo? The question is important, and admits of a most satisfactory answer. The reason of this is to be found in the fact that the lymphatics do not take up the poison from a mucous membrane in a state of integrity, but only from a solution of continuity such as a chancre produces. Hence the virus enters the blood through the veins, and produces constitutional syphilis, without, however, causing an indurated bubo.

Gonorrhœa is produced by the virus of a non-infecting chancre, or *vice versa*. The virus of a soft chancre can produce gonorrhœa when deposited on a mucous surface, and becomes modified, more or less, by the action of the mucous membrane, and loses a good deal of virulence.

**SYPHILITIC GONORRHŒA.**—The virus of an infecting chancre, when deposited on a secreting mucous surface upon which there is no solution of continuity, may give rise to gonorrhœa, syphilitic in its character, and capable of producing constitutional disease. The matter of such a gonorrhœa is capable of causing an infecting



chancre, either by natural or artificial inoculation, which chancre is followed by constitutional syphilis.

NON-SYPHILITIC GONORRHOEA, or the virus of a soft chancre on the mucous membrane of the urethra, gives rise to another form of urethral or vaginal muco-purulent discharge, without producing any constitutional disturbance.

A man having had sexual intercourse with a woman affected with an indurated chancre, or with a gonorrhœa caused by such a chancre, is liable to specific inflammation of the urethra, attended with pain, increased on micturition, and with a discharge of muco-pus from the meatus. There is a true period of incubation, varying from three to eight days. The discharge from the first is composed to a greater extent of pus than mucus. The inflammation is mostly always seated in the fossa navicularis, shows little disposition to extend itself. The pain is not very prominent, unless during the passage of urine, and then it is of a sharp, burning character. Erections do not cause discomfort; on the fifth or sixth day the discharge is well established, and resembles pure pus. The inflammation is at its height by the twentieth day. It then begins to decline, and if not interfered with, will disappear in about six weeks. There is no roughness, no narrowing of the urethra, sometimes there is induration. Buboës are not usually produced, and when they are, they are sympathetic, and do not contain inoculable pus. Epididymitis is not an attendant of syphilitic gonorrhœa. This affection is much milder than the other variety.

The gonorrhœa caused by the virus of a non-infecting or simple chancre, or by the discharge produced in others by such a chancre, although called simple, is really a more severe affection, so far as local manifestations are concerned, than the syphilitic gonorrhœa. Although it is free from constitutional complication, it is frequently attended with other affections, which are produced by extension of the inflammatory process, by sympathy, or by contact of the virus with other tissues.

Simple gonorrhœa has no true period of incubation, usually commencing immediately after exposure to the contagious influence. Within the first day there may be slight itching or tickling sensation, which is increased on the passage of the urine. This is soon aggravated into a burning pain, the urethral mucous membrane becomes inflamed. At first the seat of the affection is in the fossa navicularis, and subsequently it extends, and may even reach the bladder and kidneys. A whitish, glairy discharge, chordee, urethral inflammation, fever, more or less derangement of the digestive functions. About the twentieth the symptoms decline, the discharge becomes more muciform, and inside of eight weeks ceases entirely. Its complications are sympathetic buboës, epididymitis, prostatitis, stricture, abscess, ulcerations, &c., &c.

Simple gonorrhœa may be distinguished from that which is syphilitic in its origin, by the absence of any period of incubation, by its greater severity, by the extension of the inflammation along the tract of the urethra, subsequently the absence of constitutional symptoms. The



recognition is not very material, except for the view of preventing constitutional infection.

The constitutional symptoms which follow syphilitic gonorrhœa, are those of constitutional syphilis. There is also a tendency to early manifestations of disease of the fibrous structures, which are not ordinarily met with after infecting chancre. With reference to the treatment of syphilitic gonorrhœa, injections and alteratives are the best. Mild injections, such as those which we have enumerated, and alteratives, recommended under the head of secondary syphilis.

In the simple form, the specific treatment, by cubebs, iron, &c., with appropriate diet, is indicated. It is a well-known fact that syphilis is less severe when it begins in other parts than those of generation.

### CHANCER.

The second local form under which the syphilitic poison exhibits itself, is that of a chancre; this is usually distinguished by a want of disposition to heal, a thickened base, circumscribed inflammation, with other characteristic marks which shall be enumerated as we proceed.

The parts most usually affected with these ulcerations in men are the glans, the prepuce, the frænum, and in the angle between the glans and body of the penis; and in woman, about the labia, nymphæ and clitoris; but in some cases they extend up the vagina, even so far as the os uteri. Syphilitic matter applied to other parts of the body may give rise to chancres; but being most usually applied to the organs of generation, these are generally the seat of such ulcers.

There are two kinds of chancre: the *simple, soft, or non-infecting*, and the *hard, indurated, or infecting*. Of these, the simple is most frequently met with. It is a local disease, and is neither followed nor accompanied by a constitutional affection.

**SOFT CHANCER.**—A soft, non-infecting chancre, usually appears in from two to fourteen days after connection; generally, however, on the fifth and sixth day a small pustule, or a small abraded surface, is perceived secreting; a discharge is for the first time apparent. If the surface was intact when the virus was deposited, a pustule is the result; if an abrasion or fissure existed, so that the virus was applied to a part deprived of its epidermis, the latter form occurs. The pustule is found when the virus is applied to a surface in a state of integrity. Suppose we have a case of the pustule to deal with. An itching in the part precedes any elevation of the epidermis—a small pimple or pustule is next seen, variable in size; this pustule in two or three days breaks, or has its head rubbed off, and thus an ulcer is produced. This ulcer is generally round or ovoidal, edges perpendicular; usually, but not always deep, and the bottom of it presents a dirty gray appearance; is rough, sometimes excoriated. The ulcer spreads, enlarging equally in all directions, and in ordinary cases, when it has become about half an inch in diameter, it ceases to grow; cicatrization commences. A gray hardened border forms around it, and its circumference gradually diminishes; in about a month it is

entirely healed up. These are the ordinary appearances and characteristics of a simple, soft, non-infecting chancre. Its essential character is the softness of the base. When the thumb and finger are applied to opposite sides of the chancre, no induration is felt, the base is soft, yielding readily to the slightest pressure, and scarcely distinguishable, so far as the sense of touch goes, from the same part of the body in a normal state. But from inflammatory engorgement the tissues supporting it may be more or less thickened. The base then may give to the touch the feeling of resistance, which is, however, never more than offered by a common furuncle. It is a hardness to be distinguished from induration by the *feel*. True induration is only applicable to the infecting chancre. A slight degree of hardening may be given to the base of a soft chancre by the use of various washes, which also must be detected by the feel and the history of the case.

A soft chancre is seldom solitary, but not unfrequently two or more are present. An indurated chancre rarely has a fellow.

A soft chancre is much more contagious than an indurated one. Four-fifths of all the chancres which occur are of the simple, non-infecting kind. Inoculation affords us a ready means of determining the character of the chancre.

Soft chancre is essentially a local disease, never infecting the system, never producing those constitutional ravages which are so common as the sequence of the indurated chancre.

Soft chancre may be followed by bubo. This is always confined to the first group of glands nearest the sore, and is usually confined to a single gland. It may present two varieties, simple sympathetic adenitis, capable of resolution, or terminating in suppuration, the pus being non-inoculable; or it may be a specific bubo, which inevitably ends in suppuration, the pus of which produces, by inoculation, the chancrous pustule, and converts the wound consecutive to the opening of the collection into a real chancre.

Simple, soft chancre is the most prolific source of the chancrous virus. It secretes pus, having contagious properties in the very highest degree. The pus inoculates whatever it touches, and retains, for an indefinite period, the quality of inocubility, so that we have numerous soft chancres in the same person. Hence, a simple chancre affords, in the same individual, no protection against fresh contagion from a chancre of the same species; the reverse obtaining, as a general rule, with chancres of the indurated form. As regards site, simple chancre has never been met with on the face or head, inoculation has failed to produce it on these parts, which is not the case in indurated chancre—a fact of the greatest importance in diagnosis. A soft chancre may become the seat of excessive ulceration without much, if any, inflammatory action, the chancre enlarging and attaining an enormous size unless checked. When it heals at one border and enlarges at another, the ulceration is said to be serpiginous. Simple chancre is apt to spread, and to assume a phagedenic form, which is seldom the case in the indurated form of sore. Phagedena, as a complication of soft chancre, is almost always due to some constitutional

cause, defect—to intemperate habits, excessive sexual indulgence, bad food and air; but, above all, to the Allopathic system of medication with mercury.

In phagedena the surface of the chancre becomes dark, almost black, a purple areola surrounds it, the discharge changes to a dark colored ichor, which excoriates the parts it touches; the ulcer enlarges with great rapidity, the adjacent tissues break down. There is no limit to its action, it may cause extensive destruction; constitutional disturbance is well marked, debility, fever, and eventually hectic, &c., &c. The prospect of recovery depends altogether upon early and prompt treatment; if mercury has not been given, phagedena can generally be arrested. The secretion from a chancre attacked with phagedena is frequently inoculable.

*Recapitulation:* soft chancre is a local disease; it never infects the general system; it may be inoculated if the process of reparation has not advanced too far; it is the kind of chancre most liable to complications, such as inflammation, ulceration, and phagedena; and it is occasionally followed by two kinds of bubo, one a simple adenitis, non-virulent; the other, caused by the absorption of chancreous pus, always suppurating, the pus formed being inoculable, and therefore truly of a specific character.

**TREATMENT OF SOFT CHANCRE.**—On an average there are seventy-five cases of soft or simple, non-indurated, non-infecting chancre in every hundred.

It is highly desirable at the very start, nay, it is essentially necessary, to destroy the specific character of the chancre, and to convert it into a simple, non-virulent ulcer. Reason dictates this to be the true course, as soft chancres are exceedingly contagious, so much so that some persons have large numbers on the genital organs, on the scrotum, about the anus, labia, thighs. The pus may be carried to all parts of the body but the head. Reason dictates that if we destroy, at the earliest possible period, the *specific character* of the chancre, its contagious character is at once arrested, annihilated, and new chancres prevented. Experience adds another reason for this treatment: that the liability to the formation of virulent bubo is not only lessened, but effectually destroyed.

Now, the manner in which this may be most effectually done is by cauterization. There is no end to the caustics which have been recommended for the purpose.

**NITRATE OF SILVER.**—This agent, when applied, will sometimes have the effect of producing a simple sore; but it very frequently gives rise to considerable irritation and inflammation, whilst the *specific character* of the sore is not destroyed.

The great evil in the use of the nitrate of silver in these cases is, that it is powerful enough to irritate, but not sufficiently powerful to destroy. We want a remedy that will at once disorganize the tissue to a depth considerably greater than that of the chancre. For this purpose I employ several remedies for the destruction of the chancre.

**NITRIC ACID.**—When it is determined to destroy a primary venereal ulcer with this agent, a camel-hair pencil must be dipped in highly



concentrated nitric acid, and the surface and edges of the sore pencilled thickly over; if the acid be sufficiently strong, the whole surfaces touched are at once destroyed and converted into a yellow eschar, which, on separating, generally leaves a clean, simple sore underneath. I have found the nitric acid, saturated with nitrate of silver (one ounce of nitric acid to a drachm of the nitrate) very good in arresting gangrenous inflammation and phagedenic ulceration. A most excellent combination of nitric acid is as follows:

Ry.—Nitric acid,  
Muriatic acid,  
Sulphuric acid, aa.—*M.*

If the chancre is situated within the rectum, the nitric acid is one of the best agents to destroy its specificity. This agent may be readily applied with a glass rod, having previously dilated the bowel, and brought the parts well into view with the speculum. A piece of lint soaked in olive oil is next inserted, and left as long as convenient. Urethral chancres are also treated successfully with nitric acid. Chancres are most successfully treated by the application of strong fuming nitric acid, followed by irrigation, or a douche of cold water.

ACETIC ACID.—In recent chancre, acetic acid is the true panacea, one of the most successful and speediest methods of treating chancre; it has remarkably fulfilled the most ardent wishes of the profession. In recent chancre cauterize the sore at once with pure acetic acid, applying it by means of a glass tube thoroughly to the part, and preventing it diffusing itself by means of charpie. The pain is excessive. A whitish spot is the immediate result, and cold water dressing applied. In the use of these acids apply them liberally; applied to a surface considerably greater in circumference than the chancre, apply enough to soak well into the base, through the thickness of the ulcer to the healthy tissue below. If a minute spot is left untouched, the whole process will be unavailing. Deal with it, then, in a spirit of liberality, if you wish to be successful in the treatment.

CAUSTIC POTASH.—This is a very beneficial escharotic in the treatment of chancre, and where due care is exercised in protecting the sound parts, by cloths saturated with vinegar, no remedy can be compared with it in certain cases.

VIENNA PASTE.—This paste is a mixture of quick-lime, five parts, and caustic potash, six parts, made into a paste with alcohol, of moderate consistency, at the time it is wanted for use, and the sore and its edges covered with it. When it has been on a few seconds a smart burning pain is felt, which continues to increase as long as the caustic is suffered to remain on, which should be from a minute to a minute and a half, or even longer, according to the effects produced. After this the caustic must be all removed by means of a fine bone spatula, and the black eschar left may be covered with a poultice, or a lotion of hyosciamin, or fine, soft, dry lint. The pain soon subsides after the caustic has been removed, and in about half an hour the patient is usually pretty comfortable. The aggregate amount of pain produced by the application of this remedy is not so great as would be



imagined, while the effect of the potassa cum calce is certain, positive; all the parts touched with it are at once destroyed, and on the separation of the eschar, we have a clean granulating sore left, which heals with great rapidity.

**CAUSTIC SODA.**—A chancre, of whatever kind, must be destroyed, and for this purpose it should be our object to get the best agent for its destruction. I give the most decided preference for the caustic soda, made into stick form. It is quite as powerful as the nitrid acid, Vienna paste, caustic potass. The sore is cleaned, the soda applied and pressed on the part until the patient begins to feel pain. This is generally sudden and rather sharp, but does not last long, and is succeeded by a feeling of great relief. The surface acted on by the soda becomes of a deep brown color; a free discharge of serum follows, suppuration sets in early, after which the sore heals with great rapidity, much more quickly than after any other caustic.

If a chancre has existed some time, the caustic should be applied so freely that the whole surface gives evidence of having felt its action. True, the pain is severe, but it is momentary; and as any measure short of complete cauterization is just as likely to be useless as not, no good can result from any compromise. One effectual application will save the patient all the irksomeness, confinement and expense, which attend the long continuance of a primary sore.

**RICORD'S CAUSTIC PASTE.**—The treatment of soft chancre is the reduction of a specific ulcer to the condition of a simple ulcer. For this purpose, Ricord's caustic paste, formed by mixing powdered vegetable charcoal with sulphuric acid, is highly recommended. This paste is easily managed, as well as very effective. When applied to a chancre, it dries up and forms a black crust, which remains adherent to the tissues; it may be said, incorporates itself with them, and falls off in several days—ten or twelve—leaving underneath a healthy sore; the specific character of the chancre having been entirely destroyed. The objections to this paste are, that it causes great pain, and it is sometimes difficult to apply. The pain is not greater than that caused by other powerful escharotics. It is undoubtedly difficult to manage in parts of the body where opposed surfaces come in contact, such as the vagina.

**BROMINE.**—Pure bromine is now used as an escharotic to chancres; and the trials which have been made with this agent prove it to possess very decided advantages over other caustics. If used, it should be applied with a glass rod or a pointed stick of wood, to the whole surface of the sore, and a narrow ring of sound tissue at the entire circumference. The actual cautery, the chloride of zinc, the sanguinarin, the phytolacin and sulphate of zinc, and numerous other remedies, have been lauded by their respective admirers.

**GENERAL TREATMENT.**—After the specific character of the chancre is destroyed, and the sore nothing more than a simple ulcer, what treatment do we recommend? At this stage we have found astringents or slightly stimulating applications of great value. Such as a solution of tannin in water,—one, two, or three grains to the ounce; and it will, in the majority of cases, speedily heal. A local application of

aromatic wine,\* or port wine, medicated either with tannin, opium, or with both. If the granulations are too exuberant, destroy them with the vegetable caustic; and when they are deficient, stimulate by a solution of the same. Besides the tannin lotion, the aromatic wine and tannin, the sulphate of zinc lotion, or a solution of chlorate or permanganate of potash, may often be used with most salutary results. These should be used weak, and frequently applied; or, what is still better, the chancre should be kept constantly moist with them. Ointments are not so efficacious as lotions.

The sores are to be carefully washed with one or other of these preparations, and afterwards covered with soft lint, moistened in them. Care must be taken in renewing the dressings, to soften the lint well before it is removed, so that no part of the surface or surrounding skin may be torn away with the lint.

Instead of resorting to lotions or ointments, I have been very successful with water-dressing, from the first freely employed. Irrigation of the sore three or four times daily by means of a rag dipped in warm water, and held at such a height above the sore that the water falls with considerable force upon it; and, subsequently, by means of an irrigating machine, a jug with a very narrow spout, or a bottleful of water, with a notch in the cork. The great object is to wash away as much as possible of the tenacious secretion, and this cannot be effected by mere bathing. After this, some of the lotions, or solution of sulphate of zinc or copper,—two to four grains to an ounce—may be used during the day, and the black salve or zinc ointment at night; or, if there is much inflammation, a lotion of acetate of lead and tinct. of opii, or hyosciamin, in rose or elder flower water; but generally water-dressing is the only application required.

Any of the above preparations possess the advantage of modifying the surface of the sore, of promoting cicatrization, of diminishing the secretion of pus from its surface. The more mildly the ulcer is treated the more rapid the healing process, and less likely to be followed by complications.

The above treatment is the best to pursue in the large proportion of cases. But cases very frequently occur where perfect cleanliness and attention to hygienic measures is all the treatment necessary, other than the application of detergent washes, such as a solution of zinc sulphate or permanganate of potash. The chancre is covered with a piece of lint, wet with a solution of permanganate of potash, made by dissolving two or three grains of the pure crystals in an ounce of distilled water; and if the patient abstains from sexual intercourse, confines himself, gives himself rest, bland diet, and washes the sore three times daily with the same solution, the case will proceed to a favorable termination. It is astonishing how little is wanted in such cases to remove the diseased condition. *Cleanliness* is a most essential measure. The sore should be frequently washed, and the dressings changed. The best wash is the permanganate of potash; it destroys fetor, neutralizes

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\* The aromatic wine is composed of four ounces of aromatic herbs digested in two pints of red wine for a week, (rosemary, rue, sage, hyssop, lavender, absinthium, origanum, thyme, laurel leaves, the flowers of red rose, chamomile, melilotus and elder.)

the poison, keeps the parts clean, promotes healing. Constitutional treatment is rarely required; if there be debility, iron and hydrastin may be given with advantage. The bowels should be regular, the diet bland and nutritious; excesses must be avoided. Sexual intercourse must be forbidden; it tends to produce inflammation, and perhaps ulceration and phagedena. If there is any tendency to erections, lupulin, gelsemin or hyosciamin, may be given with advantage.

Such is the treatment of soft chancres when they run a perfectly regular course. They are, however, liable to various accidents, which complicate the treatment.

The first of these to be considered is *inflammation*. This may occur at any period, without any assignable cause, or it may be due to irritation, mechanical or medicinal. Its presence contradicts the employment of escharotics for the time being. If we have inflammation of the penis or surrounding parts, this must be reduced by emollient applications, such as mucilage of slippery elm, flaxseed, warm water, or by a bran poultice, or one made of chamomile flowers; these two last mentioned retain heat and moisture for a long period, and exert a very soothing influence on the inflamed tissues. They should be changed frequently. Perfect rest in the recumbent position—the exhibition of an eighth of a grain of podophyllin with two grains of leptandrin, terdie, well triturated in asclepin or bitartrate of potash, is attended with decided results. In addition, aconite, veratrum, gelsemin, either in solution, or what is better, triturated with the asclepin.

In all cases attended with inflammation, stimulants are generally indicated, and usually of benefit. When the pulse is frequent, the pain dull, and of an aching character, the parts livid and unhealthy, much benefit is derived from the employment of wine or brandy in moderate quantities. In such cases alcoholic stimulants, in alternation with iron and hydrastin, act like a charm. Any preparation of iron answers well; but I have derived good results from iron by hydrogen, the tincture of the chloride in large doses. I have also succeeded well with the tartrate.

The situation of a venereal sore frequently prevents the use of the local remedies in question; for instance, chancre situated under the prepuce, and producing complete or partial phymosis. In such cases there is generally more or less inflammation or tumefaction of the penis, more or less discharge from the preputial opening, and tenderness to the touch.

Phymosis and paraphymosis are the consequences of inflammatory engorgement. In both, warm applications, and relaxing or the soothing plan of treatment will generally do all that is necessary to effect a cure. Should any unfavorable symptoms threaten, the prepuce must be slit up until the constriction is removed.

In paraphymosis, mild attempts at reduction, by compressing the glans gradually and firmly with the index finger and thumb of both hands: try the local application of belladonna and glycerine. Should this plan not succeed, and should constriction be great, the stricture must be divided, after which a poultice of slippery elm. In operating for phymosis or paraphymosis, the surface of the sore thus exposed



must at once be thoroughly touched with some of the caustics before recommended. By these means we prevent the inoculation of the recently-cut surfaces. The parts should then be dressed as already suggested, or by pledgets of lint soaked in an appropriate lotion.

If gangrene should occur, mild stimulating applications, such as dilute nitric acid, or the dilute solution of the chloride of zinc, may be employed with good results. In phymosis and paraphymosis, it is the prepuce that generally suffers, and not the glans. Ulceration is one of the accidents to which soft chancre is liable, and is best treated by the destruction of the specific character of the sore, and the permanganate of potash lotion. If, after the application of the escharotic, it shows any tendency to spread, anodynes must be freely and perseveringly given, with tonics, such as cinchonin, iron, and good nutritious, blood-claborating diet.

Sometimes sloughing is very great without ulceration, and, in these cases, anodynes or nervines, such as cypripedin, hyosciamin and aselepin make a fine combination. Stimulants, good diet, active secretions, a lotion of morphia to the sore.

*The serpiginous*, or horse-shoe ulcer, is a tedious affair, difficult to cure. This form of soft chancre undoubtedly depends on some impairment of the vital forces of the patient, some debilitating cause, some constitutional defect or taint, as scrofula, tuberculosis, &c. The bromine, caustic potass, monohydrated nitric acid, the sulphuric acid paste, the actual cautery, may all be used, but almost invariably the resulting ulcer is possessed of the same tendency as the original one—the morbid condition aggravated. The treatment calculated to be efficacious, and in which confidence may be placed, is internal medication. In some cases I have succeeded well with iodide of iron, with our concentrated vegetable tonics, good diet, and strict attention to hygienic measures. Serpiginous, or horse-shoe chancres are very intractable; extremely annoying both to the patient and physician. In treating this form, never forget its cause; the remedies that are beneficial in scrofula, in tuberculosis, are indicated here. Iodine is a remedy of great power here—iodine alone, painted over the ulcer, Lugol's solution, administered internally, with full diet. The treatment by iodine alone has been successful; iron and permanganate of potash also are excellent, internally and locally. At the Clinic of the Eclectic Medical College of Pennsylvania, I have been using lately tinct. iodine locally, twice daily, and applying the permanganate of potash lotion, with the sulphite of soda internally, alternating with my favorite formula of stillingia, irisin, phytolacin and rumin, equal parts, well triturated and in full doses, with the best success. The key to successful treatment is to improve nutrition, and obtain a high standard of health.

*Phagedena* is another complication; this also depends upon a constitutional difficulty, a constitutional defect; mercury may have been given, the strumous diathesis may be present, the patient may suffer from some exhausting affection, or has become depressed mentally and physically, or he may have lived improperly. These causes must be rectified. In phagedena we have the ulcerative process developed to the



utmost, and the treatment requires promptness and decision. The first thing to be done is to destroy it effectually and certainly. This is to be done with caustic potass, or nitric acid mixture, or with bromine, an excellent positive agent in phagedena. It has been well tested, and its effects are all that can be desired. The actual cautery may be used, and is certainly an efficacious way of destroying a phagedenic sore. If used, the iron is best to be raised to a white heat, and freely applied. It is not to be preferred to the bromine, neither is it as good a remedy as the sulphuric acid and charcoal paste. This latter is often advantageous, covering the entire surface of the sore, and the surrounding skin as far as the diseased action appears to extend. Never try mild caustics, they are useless, irritating, and tend to spread the morbid action. The constitution must be rigidly attended to; we must give the best of diet, abundance of fresh air, bathing, and above all, iron in alternation with stillingin, corydalin, ampelopsin, phytolacin, rumin, &c. Iron is the grand antagonist of phagedena, it is promptly checked by it; but it must be given in such a manner as to make a speedy impression upon the system; it is a matter of indifference what preparation is used. The chief point is, that the dose should be sufficient, and sufficiently often administered. The potassio-tartrate is undoubtedly good, and by some deemed a specific against phagedena. An excellent formula is—

R<sub>y</sub>.—Ferri et potass. tart.,  $\mathfrak{z}\text{i}$ ;  
Aqueæ distilled,  $\mathfrak{z}\text{x}$ .—*M.*

Dose, half a fluid ounce three times daily; at the same time using the same as a lotion to the diseased part, before and after the detachment of the slough caused by the escharotic.

Rest is one of the most important indications in the treatment of this form of sore, and in none is it more necessary, more indispensable. Over and over again, I have seen cases in which no remedies proved of much avail till perfect rest was procured. If possible confine the patient to bed for some days, irrigate the sore every two hours, keeping the iron, tannin, or permanganate lotion constantly applied, covering up all with oiled silk. The secretions should be attended to with irisin and leptandrin.

Whenever pain harasses the patient, the most powerful sedatives must be administered. There is no rule whereby we can estimate the dose to be given, except it be the severity and duration of the suffering which the ulceration entails; but it may be received as an axiom, that it is necessary to quell the pain thoroughly and effectually; we cannot stay the ravages of the ulcer till we have attained that object; indeed, in every case of phagedena, sedatives are of the greatest, most positive value.

Cases occur that resist all treatment. Speedy, decided action is everything but here—if the disease is great in extent, it is difficult to stay the morbid process; but the principles of treatment do not vary, no matter how extensive, its destruction is essential; irritation may be great, but ether, chloroform, subcutaneous injections of morphia will subdue it. The iron should be given in still larger quantities, and the

strength should be supported with essence of beef and alcoholic stimulants.

Thus far we have considered but one species of venereal ulcers, the *simple, soft, non-infecting chancre*, and the accidents to which it is liable. This is solely and essentially a local disease, producing no constitutional affection, except the vital forces are depressed, debility, serofulous diathesis, deterioration by mercury present, &c., &c. The complications of soft chancre are exceedingly important, more to be dreaded than the original disease; but *they are local, never* causing constitutional syphilis, never converting the non-infecting into an infecting chancre. We now come to the consideration of an infection of an entirely different character.

**INDURATED CHANCRE.**—The *indurated or infecting, true syphilitic chancre*; the chancre *par excellence*. It is the *indurated* chancre, because it alone possesses a true indurated base; it is the *infecting* chancre, because it alone poisons and contaminates the system; it is the *syphilitic* chancre, because it alone causes syphilis.

The typical characteristics of a sore of this description are as follows: a pimple or pustule having been developed, a small round ulcer remains, the surface of which is smooth, often shining, as if varnished, the centre being of a grayish tint. The base of the sore soon becomes indurated, and this induration has a peculiar character, a thickening of the true venereal kind, very circumscribed, not diffusing itself gradually or imperceptibly into the surrounding parts, but terminating rather abruptly. This character is pathognomonic, and of the highest importance. It is usually easy to detect the difference between this, the true induration, and that thickening of the surrounding tissues which is always more or less present in any chancres, after caustic or other severe irritation has been applied; the latter is inflammatory, thickening, its limits are by no means well marked, and in this respect contrasts notably with the sensation communicated to the finger, as of a eup of cartilage imbedded in healthy tissues, and moving freely over the underlying parts, which the well-marked indurated chancre presents. There is no inflammatory *areola* surrounding the indurated chancre. Its edges are often a little elevated, and always adhere to the subjacent tissues, so as not to overhang or become undermined, and from them the surface slopes down to the centre, which is more or less scooped out, as it were, into a hollow. Induration, unlike the simple chancre, has a period of incubation, varying somewhat in different circumstances; it generally appears about the fourth to the sixth day, and reaches its maximum about the fourteenth day. It never makes its appearance later than the third week. It may remain a very considerable period, most frequently long after the ulcer has healed.

At first an indurated chancre may appear, either as a pustule or excoriation. If the epidermis is intact, you have a pustule; if it is abraded, an excoriation. There is no essential difference between the soft and indurated until about the fifth day, when induration, the pathognomonic sign, makes its appearance. Again, the indurated chancre is generally single, rarely multiple; it is not very contagious;

is not easily inoculated, the secretion being scanty. It is, however, invariably accompanied, and this fact is of importance—by some enlargement of the inguinal glands in one or both groins. Glands thus affected, are to the touch remarkably incompressible, like the base of the chancre itself; more than one or two are usually affected; very commonly a group of five or six. They are not painful, and they never inflame or suppurate, except in rare cases, from some over-exertion; and in scrofulous subjects. Man alone is subject to this form of chancre, consequently syphilis is altogether a human disease. All attempts to inoculate animals with the virus of an infecting chancre have failed.

Such are a few of the typical characters of the indurated and infecting chancre. It is to be distinguished from the soft or non-indurated chancre by the character of the edges, the soft having cut edges, not sloping or hollowed out as the preceding. In the soft there is no induration of any kind, and no thickening; no deposit about the base of the sore, unless it has been accidentally inflamed by irritant applications, or by friction from the dress, neglect; the pseudo-induration of this species differs widely from the true, since it shades off gradually into the surrounding tissues, and is manifestly inflammatory in its character, as already pointed out. The secretion of the soft chancre is abundant and eminently contagious; hence those chancres are generally multiple, one following another, while opposing surfaces, as the prepuce and glans penis, become rapidly affected, and in neglected cases, a crop of chancres may encircle the glans; it is prone to increase in size, slow to heal, and more liable to be attacked with bubo, phagedena, and other complications than the indurated. From the pus of the resulting bubo of a soft chancre, inoculation may be produced, and the sore so made is of a like character to the primary one; and lastly, soft chancre is essentially a local disease, produces local symptoms, and there is no resulting constitutional affection.

If indurated or infecting chancre does not extend beyond the base of the chancre, it is perfectly abrupt and circumscribed. The indurated chancre is seldom large, is not accompanied with irritation, the edges are inclined to the centre of the base, so that it presents a cup-like appearance.

Simple chancre is generally multiple; the infecting chancre, on the other hand, is usually single. One reason that may be given for this and for the great frequency with which we meet with the simple, (four cases out of every five being soft, non-infecting,) is the abundance of the secretion furnished by this species of chancre being much greater than what takes place in indurated chancre, which has very little secretion, and is therefore less readily communicated.

Another, and well established reason is, that an individual has an indurated chancre but once, and consequently, he is not liable to contract fresh chancres from an original sore. There is, therefore, in general, but one way by which more than one indurated chancre can exist upon the same person, and that is, by the simultaneous inoculation of several distinct parts of the body.

The fact that an individual has an indurated chancre but once in a



lifetime, gives us one of the most certain methods of distinguishing this form of chancre from the soft variety. The secretion of an indurated chancre, when inoculated on the affected individual, gives negative results, no chancre is formed; whereas, there is no limit to the number of successful inoculations which may be practiced on one person with the matter of the simple chancre.

The secretion of the two varieties are also microscopically distinct.

The indurated chancre is not so liable to complications, such as inflammation, excessive ulceration or phagedena. It is rare to find an infecting chancre thus attacked.

Another phenomenon of the indurated chancre is, the indurated bubo. This is almost a constant invariable companion. The bubo consequent upon an indurated chancre is always seated in those glands, which are in direct relation with the lymphatic vessels of the affected part.

During the first week, or, at latest, during the second week of the existence of an indurated chancre, the indurated bubo makes its appearance. It is to be distinguished from any other form of bubo in this, that the enlargement is not limited to a single gland, as in the other species of bubo, but affects all the glands of the cluster to which the lymphatics of the chancrous region are distributed. The indurated glands feel like bullets placed under the skin, being quite characteristic in this respect. The indurated bubo also never suppurates, unless attacked by inflammation from some other cause, such as cold, injury, strumous diathesis. It does not yield inoculable pus—it cannot cause a chancre of the same species as the parent ulcer.

Induration is pathognomonic of the infecting chancre. This may have been present and have disappeared. This is a circumstance of frequent occurrence. It is rare for this sign to vanish before the cicatrization of the chancre, although it occasionally happens.

A soft chancre may be contracted upon the indurated nodule that remains after an infecting chancre has been healed. The infecting chancre gives no immunity or protection from the soft. The soft chancre on an old induration requires the treatment we have already laid down.

An old induration is liable to spontaneous ulceration. This ulceration is non-specific, no fresh infection from it; it is not, in fact, chancrous, and always heals under the black salve, oxide of zinc ointment, or a lotion of permanganate of potash.

Soft chancre is pre-eminently liable to certain complications; infecting chancre is not altogether free from such. Though not prone to inflammation; mechanical, medicinal irritation may give rise to it, and it may be followed with great engorgement, gangrene. The principles of treatment do not vary from those we have considered, except that we must superadd special remedial measures to meet the demands of an infected system.

Ulceration and phagedena are not often met with; they are rare. Constitutional syphilis is not prevented when the chancre is thus affected. But if infection is not prevented, the specific character of



the chancre is destroyed—the indurated phagedenic chancre cannot be propagated by inoculation, as has been clearly demonstrated.

In regard to indurated bubo, and the intimate relation which exists between it and the infecting chancre, it may be stated, that it may originate without being preceded by any other evidence of disease; that is, the chancrous virus may be absorbed, so as to reach the lymphatics without abrasion, ulceration, or suppuration being caused in the first instance. This, in certain cases, may possibly occur. They must, however, be few, for we know with what difficulty, even under the most favorable circumstances, the absorption of substances takes place from surfaces not deprived of their epidermis or epithelium, and during coition sufficient time for such absorption is not afforded. That buboes of an indurated character may be formed without a chancre preceding, is simply shown by the fact, that they so frequently ensue on a gonorrhœa.

In an infecting chancre, then, we have one with an indurated base, invariably accompanied by indurated inguinal glands, which does not suppurate, and is certain to be followed by secondary symptoms. In the treatment, then, of indurated chancre, what are the indications to be fulfilled? Certainly to cure the local trouble and prevent infection.

TREATMENT OF INDURATED CHANCRE.—Supposing that we follow the rule, invariably to cauterize every sore that comes before us in the early stage, that is, before the fifth day of its development, we shall apply the most certain remedy in our power; indeed, an almost unfailing one, whether against indurated or non-indurated chancre, and which variety we are dealing with, cannot be determined at so early a period; for induration rarely manifests itself before the end of the first week, as already observed. The induration once established, no cauterization will save the system from infection. It is the first sign of a constitutional affection; the herald of secondary syphilis. Caustics may, however, be used to promote the destruction and healing of the sore, and if there be uncertainty as to the nature of the induration, the patient gets the benefit of the doubt, and we may have the good fortune to nip syphilis in the bud.

Induration in a chancre is the first manifestation of the infecting character of the ulcer; it is a sign we have to deal with; induration is the starting point, its appearance is inauspicious, and therefore, in the first stages, we advocate its destruction with the caustic soda, or bromine, or caustic potass, or the carbo-sulphuric acid, and we are convinced that, in many cases, infection will be avoided. The caustic plan of treatment is the one that may be practiced with reasonable hopes of success at any time of its progress. After cauterization, the most simple applications are all that are necessary. The aromatic wine acts very well, so does a solution of hydrastin, or rhusin, or hamamelin, or tannin; equally efficacious, or what is still better, a weak solution of permanganate of potash, as follows:

R.—Permanganate potash, gr. ii.;  
Aqua dist, ʒi.—M.

Should the chancre be healing, or if it has ceased to progress, cau-

terization is unnecessary, sometimes improper. In such cases local treatment, with a solution of hamamelin, or any of the above agents, is the most successful—the detergent action of the caustic accomplishes more than any direct influence upon the chancre.

In regard to the local application of mercurial remedies, such as black wash, yellow wash, mercurial ointment, red precipitate, calomel, they cannot be too emphatically condemned; chancres treated with such agents, if they get well, do so in spite of them—they have no salutary effect, they are the mere relic of a barbarous practice, not completely effaced from the glorious arena of progress.

Indurated chancre is a self-limited ulcer, and unless it be destroyed by caustics, or attacked by some complication, runs a regular course, and will heal spontaneously in four or five weeks.

Indurated chancre would never be attacked with those complications—inflammation and phagedena, if mercurial remedies were not employed—these agents complicate the nature and the treatment, and cause fatal manifestations of this hydra-headed disorder. Nothing tends so greatly to engender and spread phagedena as mercury. This agent, in all its forms, is destructive; under its use the tissues melt away; the springs of nutrition are impaired; it renders the blood thin and watery; it lessens the vitality of the tissues; promotes their absorption. Thus we have the countenance becoming pale under its use; the red corpuscles of the blood are impaired, and a super-abundance of white corpuscles; we have white cell blood, with spongy and ulcerated gums, and we have the disease aggravated. Phagedena is always due to an impairment of the vital forces, a failure in the powers of life, and deprivation of the blood. It has nothing to do with syphilitic poison.

Will internal remedies accelerate the cure of chancre? Assuredly they will. It is eminently proper and good practice to resort to constitutional treatment at once, with the view of preventing infection or destroying or eliminating the morbid matter circulating in the blood, and contaminating and impairing the tissues, sapping the very fountain of life; such constitutional treatment will, undoubtedly, exercise some effect over the ulcer. With the view of hastening the disappearance of the induration and preventing infection much can be done.

**THE PREVENTION OF INFECTION.**—The duality of the venereal poison is the key, the foundation of scientific venereal therapeutics, and unless we can fully realize this distinctness of morbid matters giving rise to soft and indurated chancres, our steps in treatment will be purely empirical. There is no more analogy between the two forms of venereal ulcers, except that they originate both from sexual intercourse, than there is between scarlet fever and small-pox; it would just be as philosophical to assert the identity of the latter as the former.

An indurated chancre can only be produced by natural or artificial inoculation, with the virus of a chancre of like character, which is incapable of re-inoculation in the same individual. Is it possible, after an individual has become inoculated with the virus of an infecting chancre, to prevent constitutional syphilis? We think it is. Indura-

tion is not precisely an evidence of constitutional infection, but it is an indication of the character of the ulcer—it gives an emphatic warning that contamination of the system will inevitably result, if the chancre is left undisturbed. It is proper to destroy all chancres, hard and soft, within the first week after the ulcer appears. Now it is true, that there are certain agents in the *materia medica* that act as antidotes to poisons. Thus bromine, iodine, ammonia, neutralizes the venom of certain animals. Some of our concentrated remedies, such as irisin, corydalin, phytolacin, ampelopsin, stillingin, rumin, podophyllin, properly administered, are as antagonistic to the syphilitic poison as cinchona, salicin, bebeerin are to intermittent fever. They are excellent prophylactic agents against constitutional syphilis.

In order, then to prevent infection of the system from the virus of an indurated chancre, two measures are necessary: first, destroy the chancre with some powerful caustic, as the caustic soda, bromine, vegetable caustic, monohydrated nitric acid, &c.; and second, bring the system under the influence of some powerful alterative, such as

R<sub>x</sub>.—C. syr. stillingia, 0ss;  
           C. tr. irisin,  
           “    rumin,  
           “    corydalis, āā ʒi;  
           Iodide of sodium, ʒi.—M.

A teaspoonful ter die.

R<sub>x</sub>.—C. syr. stillingia,  
           Tinct. kalamia,  
           Iris versicolor,  
           Iodide of sodium.

(In suitable proportions to the indications.) In alternation; or, the *rumex crispus*, *alnus serrulata*, *serophularia*, *corydalis*, *solanum dulcamara*, &c., &c.

The progress of an indurated chancre is as follows: the virus is specific, it produces a chancre, from that chancre constitutional infection takes place. It is analogous to vaccination—the vaccine virus is not immediately absorbed so as to affect the constitution; it passes through a certain process in order to accomplish a constitutional effect; a pustule forms, and unless that pustule does form, there is no systemic effect. An infecting chancre has a similar train of occurrences. The virus comes in contact with the glans penis, an indurated chancre is produced, and from this chancre the system becomes contaminated.

If we commit violence on the pustule, (syphilitic or otherwise,) such as by rubbing or scratching, or burning or excising it, it interferes with its regular progress, destroys or lessens the probability of constitutional infection—cauterize the vaccine pustule during the first three or four days of its course, no affect would be produced. If we allow an infecting chancre to take its course undisturbed, systemic disease will be produced within six months, that is to say, if no treatment at all be adopted this limit is seldom exceeded. But sometimes the limit

is much greater, years elapsing before any constitutional symptoms are produced. With reference to the length of time during which the medical treatment should be kept up, it is best not to stop too soon. As a rule, he should be kept rigidly under treatment for six months at least; it is not safe to leave off sooner. My practice is to destroy all chancres within six days after their appearance, and give powerful constitutional treatment, if we suspect the sore to be of the infecting species, which we know by its appearance, indurated base, indurated bubo, and, above all, by the microscopical appearances.

If we have reason to suspect an infecting sore; if there be no doubt respecting those certain signs of an infected constitution, an alternative course of treatment should at once be resorted to, either the stillingia C. syr., C. syr. frostworth, anti-scorfulous syr., or the sulphite, or the bisulphite of soda, permanganate of potash; with some preparation of iodine, as iodide of sodium in alternation with iron, and our concentrated preparations. Under such remedies induration will disappear, the tendency to systemic contamination will be diminished in intensity, or postponed, or it may be altogether suppressed or eradicated. I have met with great success, both in clinical and private practice, in the use of the concentrated remedials, such as stillingin, smilacin, phytolacin, corydalin, irisin, ampelopsin, menispermin.

The menispermin, either alone or combined, appears to me to be a remedy of great utility; given at first in small doses and gradually increased. It excites the action of the glandular system in a powerful manner, resolving vitiated deposits, correcting the secreting functions, stimulates the venous, absorbent, and lymphatic vessels, and promotes depuration through the various channels. In combination with the irisin, it has no superior as an anti-syphilitic; menispermin and irisin equal parts, act well—all the beneficial effects claimed to be produced by mercury, can be obtained from these two agents; nay, more, they will give evidence of a direct therapeutic stimulus operating upon the vital impressibility of the secreting apparatus, promoting increased activity of its functions for the purpose of eliminating legitimate products; at the same time they produce no loosening of the teeth, no sponginess of the gums, no putrefactive fetor, no sloughing of the soft parts, or necrosis of the bones. My observation and experience fully endorse the use of the above remedies. I think it a work of supererogation to say more at present of their wonderful power, in this hitherto tedious, intractable condition of the system.

When treatment with any of the above remedies is going on, the patient should well sustain the powers of life, by nutritious food, and exercise in the open air, and maintain the secreting functions of the skin in activity, by occasional warm baths, by daily thorough ablutions and friction. For local applications to the sore, aromatic wine, tannin, in solution, under which it generally heals well.

It is not within the limits of this chapter to consider the numerous details connected with the nature and treatment of constitutional syphilis. We conclude this with a *resume* of the points that we wish to inculcate.

That there are two distinct species of chancre, and only two, viz:



the indurated or infecting chancre, and the soft or non-infecting chancre.

That both forms may be attacked with phagedena; but that this commonly happens to the soft, non-infecting chancre.

That indurated chancre is never followed by specific suppurating bubo; but always gives rise to indurated swelling of the nearest lymphatic glands, which do not suppurate.

That the soft chancre frequently, but not always, gives rise to the swelling of the lymphatic glands, in which case an inflammatory supuration results, and the pus is capable of producing a soft chancre, analogous to the original one.

That the soft, as compared with the indurated chancre, is presented in practice in the proportion of four to one. Hence, putting aside treatment of all chancres met with, only one in four or five is followed by constitutional syphilis.

That in a large majority of cases in which chancres are seen by the physician in their earlier stages, a decided prognosis may be safely made as to the development or non-development of secondary symptoms.

That the diagnosis of indurated chancre being clear, constitutional remedies are indicated.

That the diagnosis of soft chancre being clear, no specific systemic treatment is necessary. In doubtful cases, it is better to resort at once to constitutional treatment.

It is impossible to make too widely known the importance of treatment at the first sign of a suspicious sore; since early and efficient cauterization infallibly prevents infection of the system, and should invariably be applied to all such sores, at the earliest possible period.

## CONSTITUTIONAL SYPHILIS.

MODE OF ABSORPTION OF THE SYPHILITIC VIRUS.—How does the syphilitic poison reach the system? There are two classes of absorbents—the lymphatics and the veins. By which of these is the venereal virus taken up? We have the most indubitable proof that the veins absorb with much greater rapidity than the lymphatics, and we may consider it as admitting of no doubt, that one way, at least, by which the syphilitic virus infects the system, is by the blood-vessels.

The genital organs of the male and female are well provided with lymphatics, and we know that the virus of a chancre passes along them to the lymphatic glands. We see the vessels red, inflamed, and the patient experiences pain along their course, but it never passes beyond the first chain of glands. When it reaches these, its further progress is arrested. The lymphatic vessels leading from them are never inflamed, neither do the glands of the deeper-seated row ever become diseased. Suppose we take any portion of the indurated gland on the point of an exploring needle, and endeavor to produce a chancre by inoculation with it; we never succeed. On the contrary, the pus of a bubo, resulting from a soft chancre, when inoculated, almost invariably causes a non-indurated chancre. We judge, from these facts, that the

lymphatic glands not only prevent the passage of the chancreous virus into the blood, but that they deprive the virus of the indurated chancre of its specific properties. The virus of an infecting chancre is absorbed into the system through the blood-vessels of the part involved in the primary ulcer, and by no other channels.

Within a period, varying according to the constitution of the patient, his mode of life, and other circumstances, of from four weeks to six months after the appearance of an indurated chancre, the system begins to give evidence of infection. The chancre may have healed, and the inguinal glands may have returned to an apparently healthy condition, when slight febrile symptoms are developed. There is a general feeling of oppression, the digestion is disturbed, the nervous system gives evidence of irritability, there is languor, indifference to passing events, the circulation participates, the pulse frequent and irritable, skin dry and hot, eyes suffused, and painful upon motion.

A prominent symptom of the constitutional infection, which occurs at an early period, congestion, dryness, and pain of the fauces, and neuralgic affections generally. Sometimes these are the only indications perceived for some weeks that any systemic disturbance is going on.

This syphilitic fever lasts but a few days, and then the system becomes tranquil; symptoms of blood poisoning manifest themselves.

The first indication of this is the enlargement of the *post cervical lymphatic glands*, which, though not generally perceived by the patient till his attention is directed to it, constitutes a valuable sign by which we are enabled to form an opinion as to the contamination of the system. It is frequently the first symptom of constitutional infection. Enlargement of the post cervical glands, below the occiput and behind the mastoid processes, feeling like small bullets, is a valuable diagnostic sign. They remain in an indurated and indolent condition, never suppurating, or increasing much in size.

Alopecia is often met with at an early period of the disease, and is an evidence of the syphilitic poison affecting the skin. As it progresses, the tendency is well marked; the skin is covered with characteristic eruptions, the mucous membranes of the digestive and respiratory passages participate in the morbid action, and the system is fairly under the influence of the syphilitic virus. The poison limited to the skin, the mucous membranes and their appendages constitute by some the secondary stage. About the sixth month, other tissues of the body exhibit evidences of the morbid process which has been set up in the system. Tumors form in the skin, cellular tissue and muscles, which soften and ulcerate; the mucous membrane becomes ulcerated, and the bones and periosteum become involved, periostitis, caries, necrosis follow, and life becomes a burden. There is no tissue, or organ of the body, that does not become more or less involved, because the blood that builds these tissues is diseased.

Eminent pathologists have emphatically told us that they detect, in individuals suffering from syphilis, a diminution of the red blood corpuscles; not only are the red diminished in number, but the white are increased. The condition is not unlike leucocythemia, and depends,

probably, upon a diseased condition of the spleen, thyroid and thymus gland, and supra-renal capsules, which are intimately connected with the formation of the red and white corpuscles. Any diseased condition of these glands, as we have in syphilis, is altogether incompatible with the complete discharge of their functions. In constitutional syphilis, the effect of the syphilitic poison on the blood is such as to produce a change in its morphological constituents, and in this manner affords us a valuable means of diagnosis.

Syphilis is caused by a poisonous virus, which, mixing with the blood, taints the constitution, and predisposes to secondary and tertiary disorders. The nature of the virus is a mystery. All that we know of it is from observation of its effects. Even the white cell blood, usually present through the whole course of constitutional syphilis, may be due to the spleen and other viscera of persons suffering from syphilis being diseased, as they are prone to lardaceous and amyloid degenerations, conditions incompatible with the proper performance of their functions. Now the question arises, can we remove this taint, this impress upon the vital fluid? For my part, I believe, in a healthy individual, that the virus of syphilis, if left to itself, and the health and hygienic measures attended to, will wear out of itself. It would be impossible to say how long nature would take to accomplish this. There is no specific of any kind for it, no remedy potent enough to kill it in the blood; nothing but a course of alterative medication. The idea that mercury is a specific for the syphilitic poison, and the incalculable mischief it is occasioning at the present day, is deplorable. It is well known that the poison of mercury produces a cachectic disease and secondary sores in the body, which have been mistaken, to a great extent, for syphilis. It happens that mercury, given to cure primary sores, produces a constitutional disorder resembling syphilis; increase the quantity, as has been the rule, and so perpetuate and aggravate the disease. The syphilitic poison is a blood disease, runs a certain course, and one that we have not yet discovered a specific cure for. The intensity of the disease diminishes in proportion as its treatment by mercury has diminished. If syphilis was treated on general principles, the same as other diseases, it would prove infinitely more mild.

The chief causes of constitutional syphilis are: the absorption into the system of the virus from a venereal sore, or from inoculation or contagion; the direct communication of a constitutional affection from a diseased to a healthy person, without the intervention of any primary disease; hereditary transmission; the treatment by mercury; some peculiarity of constitution.

### SYPHILITIC INOCULATION.

Syphilitic inoculation has been practiced for a long period, and numerous interesting, but few practical points obtained. By patient observation and experiment, the truth has been established that certain forms of syphilitic virus, when inoculated, will produce their like, which, in their turn, will again furnish a secretion capable of

being again inoculated with similar results. Some attach great importance to the discovery, so analogous to that of small-pox inoculation; but most practical men have been unable to see, in the experiments of half a century, a conclusive representation of what they see in practice. That certain forms of syphilitic disease will produce the characteristic pustule when inoculated, all will allow; but it does not follow on the one hand, that all syphilitic sores are alike capable of being inoculated; nor, on the other hand, that when inoculated they will necessarily yield the same results. Under these circumstances, and without proof as to these two last mentioned particulars, to say that a sore is syphilitic because it produces a characteristic pustule when inoculated, and that it produces a characteristic pustule because it is syphilitic, is plainly to reason in a vicious circle. The propositions themselves are undoubtedly true; but they cannot, without additional evidence, be received as excluding other modes of syphilitic infection, and other forms of primary syphilis. We are led, then, to ask whether there is no form of primary syphilis, except that which commences as a pustule? This question is important, since physicians engaged in practice very seldom have an opportunity of observing the primary syphilitic pustule, and still less frequently have they an opportunity of tracing secondary symptoms consequent upon it. We constantly meet cases in their early stages that have no sore, merely a specific induration; the surface not yielding any secretion, and still inoculation may take place. If a person in this condition gets married, his wife would stand a good chance of becoming infected with syphilis. The sores in these cases may have become covered over with cuticle, which apparently yields no pus or fluid secretion of any kind, and yet capable of communicating infection from one individual to another.

## SECONDARY AND TERTIARY SYPHILIS.

Secondary phenomena are limited to the skin, the mucous membranes and their appendages, and occur before the sixth month of infection. They are contagious, capable of being inoculated upon healthy individuals, and transmitted from parent to offspring, giving rise to true syphilitic disease. Secondary symptoms consist of cutaneous eruptions, inflammations, mucous patches, condylomata, ulcerations, alopecia, onyxia, iritis, engorgement of the post cervical lymphatic glands. The tertiary accidents rarely occur until after the sixth month. They show themselves in the submucous, subcutaneous cellular tissue and muscles, in the bones and fibrous tissues, as caries, nodes, periostitis, in the testicles, brain, heart, liver, and other viscera. Not contagious, not inoculable, not transmissible in a syphilitic form, although children born of such parents have a strong predisposition to strumous diathesis, and no doubt but certain symptoms are both contagious and even hereditary. Before proceeding with our subject of treatment, we shall briefly enumerate the symptoms, the more important manifestations of constitutional syphilis, as they usually occur.



**SYPHILITIC FEVER.**—Before the appearance of any obvious symptom of constitutional infection, the great majority of cases give evidence of febrile excitement. This is not recognized in every instance; it usually precedes syphilitic cutaneous eruptions, and if the patient is well interrogated, we seldom fail to recognize it.

In addition, we have the accelerated pulse, dry skin, gastric derangement, gloomy forebodings, physical and mental lassitude, disordered sleep, impairment of the mental faculties, exhibiting a deranged brain and nervous system, intense melancholy, approximating insanity.

**HEADACHE.**—This is a frequent characteristic symptom, due not to cerebral disturbance, but to incipient disease of the periosteum, aggravated at night, and attended with facial neuralgia. The neuralgic pain, and that arising from periosteal disease, differ in their character; the neuralgic being lancinating, not confined to one spot, while that from disease of the periosteum is generally limited to the frontal region, and is of a dull, aching character.

Besides the cranial bones, other bones are affected, especially the upper and lower extremities, at or in the neighborhood of the articulations. The pains are sometimes mistaken for rheumatism, though the least attention to their character will enable us to discriminate between them. These pains are worse at night. The parts are sometimes swollen, inflamed, and tenderness on pressure is always present. If the patient rests, the joints are stiff, although exercise removes this symptom. *Neuralgia* is generally met with in the parts supplied by the infra-orbital, and branches of the fifth pair of nerves; but it is not limited to those regions, attacking the nerves distributed to the trunk and limbs. Substernal tenderness is a most valuable diagnostic sign; this can only be detected by pressure. When searching for this sign, knead the bone with the fore and middle fingers carefully, from the manubrium to the xiphoid cartilage. In a case of suspected constitutional syphilis, if the patient be asked if he has pain in the breast-bone, he will probably answer in the negative. Press the sternum carefully and gently along the whole length of its course, and the tender spot will be found usually at the commencement of the lower third. If substernal tenderness be found, we are safe in assuming that the patient labors under some acquired venereal taint, which may have been masked by different other symptoms, and be unsuspected by both patient and physician. It often furnishes a clue to the cause of very anomalous symptoms, and a valuable guide to us in treatment. Although the existence of substernal tenderness is, I believe, unerringly significant of venereal dyscrasia, yet a patient may have constitutional syphilis and not manifest this sign. But when we detect it, it is a valuable guide for treatment. Substernal tenderness is, no doubt, produced by a periosteal inflammation, slight in degree, and may be in its immediate effects; such as pain and tenderness, inappreciable to the patient. We have also muscular pains, dull, aching in their character; felt in the shoulders, loins, intercostal region, and which, like those attacking the periosteum, are aggravated at night.

Such are the principal and early phenomena of syphilis. After

they have lasted eight or ten days they decline, or pass off altogether, and an eruption makes its appearance.

SYPHILITIC AFFECTIONS OF THE SKIN.—Authors describe an immense variety of skin diseases depending on constitutional syphilis. Some occurring in the early and some in the later stages. But they may, with propriety, be all arranged under four heads.

1. *Simple congestion* of the skin, constituting *roseola* or *erythema*.

2. *Congestion, with ulceration* of separate *follicles*, constituting *lichen*.

3. *Congestion*, with elevation of a small group of follicles, or uniform tumefaction of a small portion of skin, constituting *tubercula*.

4. *Pustules*.

All the various eruptions may be classed under one or other of these divisions. Their sub-division amounts to nothing but confusion. Of these four groups of eruptions, the first and second are met with during the first stages of constitutional syphilis, or the so-called secondary stage; those of the third and fourth are confined almost entirely to the tertiary period.

Instead of the above simple division, another has been proposed, namely: two great classes, the secreting and non-secreting. In the dry group, we have erythema, papules and scales; and in the moist group, vesicles, pustules and tubercles. The moist form appears more frequent upon the weak and debilitated, and the other forms upon those whose powers are more resisting. Indeed, we mostly see pustules and tubercles running into ulceration in patients wanting stamina. It is, in fact, interesting to notice that, from the mildest form of papula erythema, to a very deep, destructive, or even phagedenic ulcer, the process is the same, but becomes aggravated in a direct ratio with the powers of the organism.

These cutaneous manifestations, after the virus has found its way into the economy, is thought by some to be the result of a vigorous effort of the organism to bring to the surface and cast off principles, which are setting up an abnormal action in the system; but this is not essentially correct; we may have a syphilitic eruption without any febrile disturbance whatsoever; such eruption may occur again and again on the same subject; it may, also, from the beginning, possess a character of chronicity.

FIRST CLASS.—Simple congestion of the skin, syphilitic roseola or erythema, is generally the first eruption to appear; it is peculiar from its mildness, and from belonging to the great class of dry eruptions. The fever and skin eruptions must be regarded as the regular and essential symptoms of constitutional syphilis, and not as any results of the attempt of the system to cast off the virus. The poison is never expelled in this way.

*Erythema* shows itself first about ten days subsequent to the fever, first on the abdomen, inside of the thighs, and gradually spreads to the chest and extremities. It appears in some cases like a measly rash, generally lasts from three to eight weeks; sometimes, though rarely, as many months. This is, by far, the most common affection of the skin; it seldom proves annoying. It is open to sources of

inconvenience—it may act in an energetic manner on the rete mucosum, that very obstinate yellow, or copper-colored stains, for months or years, be left on the skin. They may, also, if any great disturbance of the organism takes place, run into pustules, and thence into ulcers. Along with this skin affection, other manifestations show themselves. The throat becomes dry, painful, and mucous patches are found in the fauces; other portions of the mucous membranes, as the mouth and around the anus, are similarly affected.

Alopecia is not always present; but if it exists, it is apt to create suspicion. The falling off of the hair is not confined to syphilis; frequently results from fevers. In the venereal form, scabs are met with on the scalp.

*The engorgement of the post cervical glands* must never be forgotten, as a most invaluable diagnostic mark of the true nature of the eruption. The color of the eruption is not of much value as a diagnostic sign; it may be rose-color, or pale red, or copper-colored, which may be modified more or less by the hue of the skin, and other circumstances. Syphilitic roseola alone is usually easily managed, and is very amenable to treatment.

*Insensibility of the skin* is a positive and most remarkable sign. The sensibility of the skin is lessened to all impressions, not only where the eruption is prevailing, but in regions not yet attacked; there is no inconvenience. In erythematous eruptions depending on other causes, intolerable itching is one of the most troublesome and most prominent symptoms. Wherever syphilitic eruption exists, there the sensibility is greatly lessened. This general or partial loss of sensibility in the skin is one of the effects of the blood poisoning. It does not last through the tertiary stage, and often disappears before the secondary stage is completed. It is a most valuable indication of the nature of the affection under which the patient is suffering.

**SECOND CLASS.—CONGESTION, WITH ELEVATION OF SEPARATE FOLLICLES.**—The several varieties of lichen come under this head. These are numerous, and their essential difference consists in the size and arrangement of the follicles; a distinction unequalled for. The characteristic of lichenous affections consist in the fact that the eruption is made up of small follicles or papules. Hence they are named follicular or papular diseases. These papules vary in size from that of the head of a pin to that of a pea. They are either arranged in groups, looking like raspberries in form, or scattered over the body, more or less closely together, or presenting the appearance of rings. Each papula is distinct, no matter under what form the eruption appears. On their first appearance, these papules are of a dull red color, but after they are out some time, they become copper-colored. They terminate by resolution or desquamation, suppuration seldom taking place. They appear on any part of the body, and usually last two or three months.

Though usually following roseola, syphilitic papules may be the first cutaneous affection which gives evidence of contamination of the system. They usually appear early in the disease. We may have



roseolous and papular eruptions existing at the same time; this is not so common.

Several eruptions of papules may take place; hence we frequently find them in all stages of their growth in the same individual at the same time. They cause no irritation, resembling in this circumstance the erythematous variety.

The *third* class of syphilitic skin disease is that in which there is congestion, with the elevation of small groups of follicles, or uniform tumefaction of small portions of the skin more than two lines in diameter.

Tubercular eruptions are not met in the early stages of syphilis; they are always preceded by papular or erythematous disease. It never occurs within a year after infection; usually four, five, and even more years may elapse. Cases are recorded where they have come on twenty years after infection. They are occasionally produced from the development of a prior roseolous or lichenous affection, but for the most part they are originally formed. They are not confined to any part of the body, but the face and body are most liable.

Syphilitic tubercles differ from lichenous papules in the fact that they often evince a strong tendency to ulcerate. Pus is formed in them, a crust is produced at the apex of each tubercle; this is rubbed off, and an ulcer results. But this is not always their progress. Occasionally they terminate in resolution, the epidermis covering them desquamates and falls off.

The *fourth* class of syphilitic eruptions, the pustular, is likewise peculiar to the latter stages of syphilis. This and the former class are designated the wet form. The pustular eruptions may be taken as fair examples of the evolution of syphilis upon subjects debilitated from various causes; insufficient nourishment, over-work, defective clothing, or excess of any kind. Anything that has a tendency to weaken the organism, such as mercury. This group comprises pustular eruptions which have formed crusts of various sizes; the breach of surface, caused by the breaking of the pustule, healing nicely under the crust. When the latter falls off, the stain is often less apparent than in dry eruption. It would seem as if the formation of pus had carried off the coloring which, in the dry form, stains the rete mucosum. In pretty healthy subjects, the crusts are small, and soon fall off; in others they reach a large size, and protect the healing process beneath, which begins immediately, and no more pus is secreted. But, in less healthy patients, the continuous secretion of pus loosens the crusts; these at length fall off, and lay bare a loss of substance, an ulcerated surface.

The pustular eruption is usually rupia. It is said by some to begin as a vesicle. This probably happens sometimes, but I am more certain that it more frequently takes its rise as a pustule—a pustule, a scab forms on its summit, and this becomes thicker and thicker by the suppurative process which is going on in the ulcer beneath, and the drying of fresh quantities of pus. They assume different shapes, and pass by different names, according to their form. In size these scabs vary from a diameter of half an inch to two or three inches. Each



scab is surrounded by a copper-colored areola, and the ulcer underneath is deep, excavated, and, if the edge of the scab is raised, discharges a sanguineo-purulent matter of a very unhealthy appearance. *Rupia* is invariably accompanied by a depraved habit of body; a vitiated state of the system, independent of the specific malady.

Besides these *four* divisions of skin affection, under which most all forms may be classed, there are some other affections which cannot be properly classed as eruptions; affections of the skin and mucous membranes caused by the action of the syphilitic virus.

*Syphilitic Ulcers* are frequently met with in the varying progress of the disease, they usually occur at a late period, but are frequently met with in the secondary stage. The cause of these ulcers may be an injury, suppuration of an existing cutaneous eruption, or inflammation from whatever cause, occurring during the prevalence of the syphilitic taint. Syphilitic ulcers may appear in any part of the body, on the face and lower extremities most frequently; they are deep, foul, unhealthy-looking, extremely chronic in their character, and heal with great difficulty. Occasionally they run into sloughing phagedena, and the destructive process connected with syphilitic peritonitis and osteitis.

*Syphilitic Ulcers* take on phagedena generally from want, or neglect, or excess, or a depraved constitution, and require very active treatment. In certain constitutions we may have an ulcer, arising from a vesicle, or pustule, or tubercle, and even a gummy tumor is prone to ulceration.

*Mucous Patches, Condylomata, or Warts*, appear at an early period of the constitutional affection, generally with, or subsequent to, the roseolous eruption. They are not confined to any particular part of the body, they affect the skin, the mucous membrane, the orifices of the gastro-intestinal canal, the vulva, where there are folds of skin, or two opposing surfaces meet, as in the groin, the axilla, between the toes. Mucous patches in the mucous membranes are of a dirty gray color, irregular in size and form, and not elevated above the adjacent surface. When they occur in the fauces, on the tonsils, the syphilitic sore throat results. They frequently terminate in ulceration, are difficult to cure, and, if removed, are apt to recur. Syphilitic laryngitis is generally due to this form of inflammation. Vegetations, or warts, or condylomata, or mucous patches, are perfectly characteristic, and easily detected. Occasionally they discharge and ulcerate; condylomata may arise from the surface of an indurated infecting chancre, due to exuberance of granulations. Mucous patches about the anus, should ulceration supervene, give considerable pain and irritation.

*Syphilitic Onychia* is due to syphilitic inflammation of the matrix of the nail of a finger or toe. The parts become red, swollen, painful, and, from between the integument and base of the nail, a discharge of badly-formed pus takes place. The nail may come away without any of these symptoms being present. As it progresses, we have ulceration supervening, extensive granulations of a fungus character are formed, which add much to the unpleasantness of the affection.

The pain is usually intense. Should the matrix escape ulceration, the nail, which has become detached, is reproduced; but if, on the contrary, the matrix is attacked with ulceration, the nail is never restored.

*Syphilitic Iritis* may occur as a very early manifestation of constitutional syphilis; if in the early stages, its progress is rapid; if in the latter stages, slow. The most frequent time of its occurrence is about the ninth or tenth month. The first symptom is suffused redness of the eye, injection of the vessels of the conjunctiva and sclerotic. Later the redness is not generally diffused over the whole surface of the eye, or inner surface of the lids, but is limited to the circle formed by the junction of the sclerotic coat with the cornea; the color is of a purple hue; the cornea loses its brilliancy, becomes hazy; the iris assumes abnormal forms; little yellow tubercles appear upon its surface, and the pupil becomes irregular in shape. We have photophobia, dimness of vision, intense excruciating pain in the eyeball and surrounding parts. Syphilitic iritis co-existing with the venereal taint, generally occurs at a comparatively late period of the disease, and in habits that are much enfeebled and vitiated. There are numerous other diseases, both of the eye and other parts, due to a syphilitic cause, which require no special treatment beyond that necessary for the general eradication of the morbid condition from the system.

### TREATMENT OF SECONDARY SYPHILIS.

If an indurated or infecting chancre is not destroyed prior to the sixth day, there is danger of a systemic infection, of secondary syphilis.

The secondary symptoms or effects we have noticed as cutaneous eruptions; erythema; scaly eruption; papular eruption; tubercular eruption; mucous tubercles, or patches, or condylomata; ulcerations of the toes, the ear, nose, lips, angle of the mouth. Syphilitic affections of the tongue; excoriations of its surface, ulcerations, fissures, and induration of its substance. Ulceration of the gums, tonsils, soft and hard palate, of the pharynx, affections of the eye.

In the treatment of constitutional syphilis, it should always be kept in remembrance, that whatever depresses the vital force, or impairs the general health, favors the development of the syphilitic contamination, and its external or local manifestations; and that, if the remedies resorted to produce these effects upon the constitutional energies, they will prove more injurious than beneficial. Hence, it is of the greatest importance that remedies be so combined, exhibited, and alternated; and so aided by a regulated diet, rigid hygienic measures, a healthy, temperate, dry atmosphere, so as to promote the constitutional powers, increase the vital forces, and improve nutrition; improvement in the healthy appearance of the patient generally indicating the success of the remedies employed.

As a remedial agent in the treatment of constitutional syphilis, is any preparation of mercury of any value? We say, most emphati-

cally, no. Experience has shown, over and over again, that syphilis can be cured more speedily and more effectually without mercury than with it. The great proof of this is, that the intensity of the disease, under our advanced system of practice, has diminished. Mercury is an improper and highly deleterious agent when exhibited as a specific for the venereal poison. The fact is now completely established, that mercury is not necessary. In the treatment we would improve the quality of the blood, we would promote elimination. What agents in our materia medica do we claim as being of decided utility in this form of the affection?

*Ampelopsin* has a good action in the cure of constitutional syphilis. A combination of intrinsic value consists of stillingin, irisin, phytolacin, or corydalin; but, as a general thing, ampelopsin alone has answered the most sanguine expectations of the profession.

But, if the reader must have mercury in the treatment, why not use podophyllin or irisin, a complete, a reliable substitute for any form of mercury. Podophyllin or irisin in small doses, is wonderfully resolvent, and by its peculiar excitation of the glandular system, will do more in systemic syphilis than any agent we possess.

Podophyllin is peculiarly serviceable with phytolacin and capsicum—as an alterative, its sanative influences are more certain and reliable, and its operations entirely devoid of any secondary deleterious effects whatever. It does not, like mercury, cure by changing the type, and creating another disease; but eradicates the virus from the system.

The *rumin*, as an alterative, either alone or combined with the *alnuin*, is in very high repute. In the eruptions, it operates efficiently and without excitement; certain, positive in promoting the depurating functions. In combination with stillingin, leptandrin, and podophyllin for the skin affections, or with corydalin, ampelopsin, phytolacin and smilacin.

In the different forms of eruption, and for the cure of syphilis, phytolacin is equal to any other remedy. If the patient be properly brought under its influence, and proper attention paid to diet, bathing, and auxiliary treatment, a cure is almost certain. The best method of using it is to push it for four or five days, then leave off as long, in the interval putting the patient upon a decided tonic, with corydalin, smilacin, stillingin, myricin, irisin; should be combined, one or all them with the phytolacin, to meet indications. It is peculiarly serviceable in syphilis.

*Menispermin* is exceedingly valuable in the treatment of syphilitic and mercurial diseases, and superior to any other as a general alterative.

*Rumin*, or the dock root, is alterative and detergent, and acts well, or in combination with any of the above. I have also found a decoction of the soapwort, figwort, hoary pea, with some of our other concentrated remedies, are of utility. The galium aparine is also highly esteemed.

*Stillingin*.—This agent has long been used; but it is only of late years that it has been fully appreciated by the profession. The dose

must in all cases, be suited to the peculiarities of the case. It is best given about two hours after meals, as it materially interferes with the appetite if taken before meals. In order to realize its great utility, when used alone, it must be persevered with for a long time. In syphilis I am partial to it in combination with such agents as the corydalin, irisin, phytolacin, smilacin, podophyllin. No physician that gives this agent a fair and impartial trial, but will realize important results.

*Corydalin*.—Our clinical experience in the use of this agent, in all forms, enables us to speak positively of its remarkable value. In combination with podophyllin, it has been much used in syphilis. No single agent possesses more positive and energetic anti-syphilitic properties. An energetic alterative, combining excellent tonic powers. It neutralizes, deterges, promotes depuration of the virus; toning the various functions in performing their proper share of elimination. In very small doses it resolves the plasticity of the blood, regulates and quickens the activity of the eliminating vessels, more especially the renal and cutaneous; promotes digestion, assimilation, and nutrition. It is particularly indicated in extreme cases, where debility is intense, the blood extremely reduced—in repairing, in building up new tissue, the peculiar efficacy is apparent. It is well, also, to combine it occasionally, or give it in alternation, to meet the peculiar indications of the case, with ampelopsin, irisin, stillingin, &c. In the correct treatment of the venereal disease, it is worthy of the confidence of the profession. The C. tincture corydalis and saturated tinct. of Jeffersoniæ, are excellent in combination. In the use of these agents, much depends upon getting proper action of the three principal emunctories: the skin, kidneys, and bowels. Great care is necessary not to over-stimulate and exhaust those organs. I have, also, derived good results from the corydalis and viola tricolor: this is a valuable anti-syphilitic.

*Irisin*, also, is a remedy of great power in the treatment of constitutional syphilis—chiefly useful as a powerful resolvent, and promoting the activity of the absorbent system. I have given this with the populin, with the most decided advantage.

*Con. Comp. Stillingia Alterative*—This is one of the very best combinations in the treatment of the venereal taint. As a remedy, it is remarkably efficient; best given about two hours after meals, dropped in cold water.

*Tinctura Kalmice*.—The sheep-laurel leaves, in the form of a tincture, is one of our very best alteratives, and is peculiarly indicated in syphilitic affections, in doses of ten drops, three times daily, gradually increased. It forms one of the most efficient remedies when it is added to the stillingia, syr. C. I have also derived the most decided results from the *celastrus scandens*, sometimes alone, or with irisin—it is an efficient remedy; in the skin affections, I use it as a decoction or an ointment. The *helianthemum canadense*, in decoction, syrup, or fluid extract, or combined with corydalin, irisin or stillingin, forms one of the most valuable remedies in secondary syphilis.

*Gold* is a therapeutic agent of wonderful power in the treatment of



constitutional syphilis—nothing contra-indicates the use of this agent ; put the patient upon it in small doses, in alternation with some of the above remedies. For internal administration, I employ the chloride of gold and soda, and greatly prefer it in alternation with the concentrated remedies. In small doses, it is endowed with general stimulating diuretic, and energetic alterative properties ; it is a very decided anti-syphilitic, and is rapidly eliminated from the system. It is incompatible with all our concentrated remedies, or extracts, or salts, or metals, and is best given alone in alternation with those remedies ; the simpler the form, the less will there be the liability to decomposition. In inveterate cases, I have used gold with entire success. As a general rule, never use a remedy longer than a week or ten days, change, and then resume, and in this way the good effects of a good remedy may be obtained for months. In order to be successful in totally eradicating the poison, treatment must be continued for six months or a year. No matter how efficacious it seems to be, continue it for a long period.

Modern research has completely exploded the mercurial treatment ; cases now recover more rapidly under the use of dilute nitric acid in a decoction of bark, than under any preparation of this destructive agent. It is no specific, but apt to bring on complications, and is now discarded by all genuine American practitioners.

*Iodide of potassium* is an agent that has been much used by the profession in the C. syr. stillingia, anti-scorfulous syr. frostworth. In certain cases it appears to exert an amount of control, but it is very doubtful if its efficacy equals nitric acid. Iodide of potassium certainly causes many of the manifestations of syphilis to disappear ; but they return, unless the remedies above mentioned are used with or in alternation with it. As a means of removing any induration, or eruption, it cannot be rated too highly, but its destructive effects on the red corpuscles of the blood will always be a formidable obstacle to its general use. The bromide of potassium, though slow in its action, has no material effect on the blood corpuscles. Iodide of quinine is valuable in certain cases. An excellent preparation of iodine, in combination with lime, is the iodide of calcium. Its great advantage is that it can be given in most debilitated states of the stomach ; the best period for its use is at the manifestation of squamous disease of the skin, or where mercury has been the prior treatment ; the best forms of administration, simple solution ; the solution with the fluid extract of stillingia, iris versicolor ; the solution and tincture of sesquichloride of iron, or any bitter infusion not containing starch.

*The Iodide of Sodium and Ammonium* are better calculated to meet the pressing indications of a case of syphilis in its constitutional form than the iodide of potassium ; being more active, their effects more positive. The good results obtained by treating this affection with iodine are usually known ; yet there are cases which occasionally occur that resist its influence.

Encouraged by the success of the use of sulphites in European practice, I have been prescribing these agents in private practice, and at the Clinic of the Eclectic Medical College of Pennsylvania, with some success, in constitutional syphilis.

*The Sulphite of Soda*, from these extended trials and experiments, seems to be an active antagonist to the virus—a decided improvement taking place in all cases. In hopeless cases I have tried it in scruple doses three times daily, dissolved in water, with the best results. In one case of rupia, of twelve years standing, I gave it in drachm doses ter die in an infusion of hydrastis and poplar bark alternately, and in a short time he became perfectly well. I might give innumerable instances where this agent has proved of immense value, incomparable in its effects, to all other remedies. It would seem to neutralize the virus, even after it had contaminated the economy. The sulphites, or bisulphites, are very serviceable where mercury has been given. The bisulphite of potassa I have most frequently used, sometimes beginning in ten or twelve grain doses and increasing it to a drachm. It is very refreshing to the patient, is soluble in four parts of cold water, or it may be given in sweetened water. It agrees well with all stomachs, and has no local irritating properties, and acts as a diuretic.

*Nitric acid* will be found serviceable in many cases that resist the action of other agents. I have found it best where there is emaciation, debility, caries of the bones, and general derangement of the nervous system.

*The alkaline permanganates* are highly recommended as antidotes to the contamination produced by the syphilitic virus; no doubt they are well calculated, in an eminent degree, to meet cases of poisoning by organic poisons. What their positive virtues would be, in syphilis, I am not prepared to say.

The chlorate of soda is a very soluble agent, and may, with advantage, be substituted in certain cases.

With regard to the chlorate and permanganate of potash, advantages of a very decided character are to be derived from their exhibition—the former in syr. stillingia or in a saccharine vehicle; the latter in doses of half a grain, three times daily, dissolved in a wineglassful of distilled water, care being taken to prevent its contact with any organic matter before it is administered, whereby decomposition would take place.

Guaiacum, yellow dock, sarsaparilla, are absolutely worthless; true, they have acquired a great reputation as valuable agents, but this has resulted, in a great measure, from their being simply the vehicle for conveying the bichloride of mercury into the system. I have used a remedy that I esteem more efficient, and that is *chionanthus virginica*, the bark of the root in infusion; it is an alterative and tonic.

Guaiacum has been used to relieve the nocturnal pains which occur in the bones, muscles, &c., but it is not at all a reliable agent. Lupulin, hyosciamin and chlorodyne are better agents for this purpose; they possess no antidotal property, but prevent irritation and give the patient rest, quieting the nervous system, diminishing pain. Chlorodyne is a good agent; twelve minims of chlorodyne in water twice before bed-time, acts so well that patients enjoy the most absolute, perfect rest. The effects do not soon pass off—a good dose at bed-time, the patient will feel easy for forty-eight hours. It may be applied locally with good results, producing warmth and perspiration, with a remarkably soothed state of mind and arrest of pain.

We might take up our space to an almost unlimited extent in enumerating remedies that have a reputation as anti-syphilitics. But there are numerous medicines, valuable adjuncts, not possessing any specific effect, but tending to build up and support the system. Among these we have iron as entitled to the very highest consideration, so are the vegetable tonics, cinchona, gentian, quassia, hydrastis, &c. Iodine—iodide of iron and cod-liver oil or glycerine, hypophosphites.

Besides the treatment of constitutional syphilis by means of internal medicines, it also is good practice to aid the eradication of the virus, and aid in producing a constitutional change by means of external medication, by means of baths. We have the ordinary bath, with a sufficient quantity of an alkali, or iodide of potassium; we have the sulphur bath, or the nitro-muriatic acid bath, all excellent adjuncts, and should not be overlooked. The Turkish bath is esteemed by some superior to all others; certain it is that it is well adapted to the chronic stages of secondary syphilitic eruptions. Baths are useful, nay, indispensable; but not so effectual in eradicating the disease as internal medication. In the skin affections bathing and inunction by remedies incorporated in glycerine, are highly advantageous. In some cases I have used baths, say twenty gallons water at 98° Fah., with five ounces of the sulphuret of potash. This is an excellent bath, and might be used with advantage every second day, or according to the severity of the disease. Fumigation may be used also with success, in bad cases. At other times I have used alcohol with tinct. iodine, the ordinary vapor bath, which can be used by any patient. Sweating is a potent remedy for intractable and inevitable cases of secondary syphilis. I have found the following useful where the itching is extreme, say four drachms of chloric ether to a pint of elder-flower water. I have also used phosphorus, locally and internally, with success. Its energetic revulsive properties render it valuable in the former, and its great tonic properties in the latter.

Chloride of soda in solution is somewhat advantageous; pitch ointment, and the remedies enumerated under skin diseases.

The red spots or efflorescence of the face are best treated by washing them several times daily with borax and rose water.

Relative to the hygienic management of syphilis, there is much, very much, that can be done.

*Cleanliness* is most essential, an important element in the treatment of syphilis, and should be strenuously, nay, rigorously insisted upon. The patient should either be sponged all over, or he should bathe, making a free use of soap. The clothes that come in immediate contact with the skin should be frequently cleansed. The mouth and throat should be washed, and the teeth cleansed several times daily; and for these purposes the chlorate or permanganate of potash should be employed. Nothing so destroys the bad odor of the secretions of the mouth in a syphilitic patient, as the permanganate of potash. The *diet* should be most nutritious, digestible and abundant, consisting of meat, eggs, bread, with a sufficient quantity of stimulants, in the shape of wine or ale, to aid digestion, without creating drowsiness or fever-

ishness. He should avoid excess. Let him have his tea and coffee and tobacco. The patient wants to make blood quickly, good blood, and let the system be furnished with agents calculated to meet this pressing indication. The rule should be, satisfy the appetite; whatever is known to produce disturbance should be avoided. One remark that we might make, and that is, in the treatment of constitutional syphilis, never allow your patients vinegar, or any form of acetic acid; if we do, our best remedies may be neutralized.

*Fresh air* is highly essential. His apartments should be well ventilated; he should be encouraged to take exercise in the open air, when the weather permits. Free exercise of the muscles and lungs in the open air, is indispensable. The accelerated venous circulation which it causes, and the compression of the abdominal viscera by the contraction of its muscles, are the best means of promoting the action of the liver and lungs, and preventing constipation and its attendant evils. But the exercise, in all cases, should be voluntary, so as not to be carried to fatigue, which must be avoided. Daily walks in the open air are always beneficial; sudden changes of temperature must be carefully guarded against; damp weather should be carefully avoided. The air of the mountains in the interior, in the summer, and in the late autumn, when the air loses its freshness, and is tainted with the falling leaf and decaying vegetation; the suburban parts of cities, such changes are advisable for those who can afford them. But if the habit be extremely delicate, nothing is better than an equable temperature.

The *clothing* should always be of such a character as will protect the surface from sudden chilling. Flannel should be worn next the skin, both in summer and winter; in winter for actual warmth; in summer to neutralize any accidental changes of temperature.

The syphilitic individual should keep regular hours, abstain from venereal excesses; he should lead a temperate life, equable both as regards his physical and mental existence. It is thus, when these hygienic measures and proper internal and external medication is used, properly and efficiently, that we can thoroughly cure syphilis. The hygienic measures are valuable as accessories; they should never be neglected, for much depends upon their judicious use.

## SYPHILITIC ERUPTIONS.

We have seen that the syphilitic poison, once introduced into the system, is apt to be followed by certain eruptive manifestations; these are only the visible evidences of a deep-seated change in the system at large. The functions of the various organs are deranged; the blood is charged with a poisonous principle; its corpuscles are impaired, indented, few red, and a superabundance of white corpuscles; and all the organs and structures supplied with that blood, suffer to a greater or less extent. The *brain* evinces its suffering by mental dejection; the *nerves*, by a general feeling of prostration and debility; there is often neuralgic pains in the bones, showing the *osseous* system is implicated; the heart is imperfectly nourished, the pulse is quick and weak,



the secretions are impaired, the fauces are more or less congested, the tonsils and soft palate being frequently swollen; there is irritation of the larynx, producing a mucous cough, and often nausea; the conjunctiva is congested and muddy, and the whole skin remarkable for its yellowish and dirty appearance, looking as if saturated with impure and discolored humors.

We have seen that syphilitic eruptions have certain peculiarities.

We have the *history* of syphilitic inoculation, which tells its tale by the numerous symptoms due to the circulation of the poison, and in addition, by the presence of cicatrices, indurations, scars, and stains about the penis and groin.

Their *color*, copper-colored; in reality a reddish, yellow brown, dull red at first; yellow, dirty stain remaining for a varying length of time.

Their *form*, which is peculiarly circular, syphilitic, scaly eruptions, are composed usually of circular spots. Scales or squamæ are thin, very fine gray. Crusts are thick, greenish or black. Vesicles are flattish, and do not readily rupture.

Absence of itching or pain, syphilo-dermata, are generally unaccompanied by heat or pruritus during their existence. Their polymorphism is very characteristic of syphilitic disease. Several kinds of eruption may co-exist. It is no unusual thing to see papules, pustules and squamæ co-existent on the same patient.

PROGRESS OF THE VIRUS.—Induration of the part inoculated, equivalent to increase of virus by molecular or cell development. Absorption and transmission of virus to the contagious glands; induration and irritation of those organs; leucocytosis; and, consequent thereon, modification of nutrition. Passage of the virus into the blood; its elimination through the skin and mucous membranes, and consequently, eruptions and ulcerations. Absorption by the lymphatics of the syphilitic virus not wholly eliminated; irritation of other glands; transmission of virus from one set to another, &c., &c. Elimination failing; alteration in quality of virus, and its deposition in certain structures; profound lesions of nutrition.

The first manifestation of constitutional syphilis is, as we have already stated.

SYPHILITIC FEVER.—It frequently happens that this is the earliest symptom of the infection of the system. The first thing to be done is to put the patient upon constitutional treatment; say begin with the C. syr. stillingia, with irisin, and iodide of sodium; and the preparation might be advantageously combined with tinct. kalmia, in sufficient proportion. Aconite, with sponging the surface if the fever is high, is admissible. But by no means must the patient be depleted; he must be built up. The constitution is impaired, depraved; depletion always makes matters worse—the fever is asthenic. If there are evidences of gastric or intestinal derangement, the neutralizing mixture, with juglandin or leptandrin, may be given, and attention should be assiduously paid to the general well-being of your patient, to his food and drink; it should not be of an irritating or stimulating character. Should the pains in the head and bones become severe, we may give chlorodyne, or hyosciamus, or camphor and gelsemin, or opium;

Battley's solution, ten drops every two hours, with five drops of chloroform, and increase at bed-time. *Sleep is an essential element in the treatment of disease.* In the exhibition of our concentrated remedies, it must ever be borne in mind that we derive their best results in a triturated form, in sugar, or what I deem better for that purpose, asclepin. These remedies, given in a pure form, are prone to produce local irritation, frequently causing them to be rejected, or creating constitutional symptoms, which very much lessen their curative powers. If you prefer the con. tinctures, they must be given in water. The quantity to be administered must depend altogether upon the age and temperament of the patient. If the affection is chronic or inveterate, syrup is a good form to administer them; it serves the purpose of combustion in lungs and extreme capillaries, increasing the animal temperature, promoting secretion and excretion. If you desire to improve nutrition rapidly and effectually, give them in glycerine, as one of the best agents. The best remedy to control the fever, with all its complications, is powerful constitutional treatment.

The neuralgic and muscular pains are sometimes effectually relieved by the hypodermic injection of a solution of morphia along the course of the painful nerve or muscle.

*Alopecia* is usually one of the first symptoms of constitutional syphilis, and is best arrested, and the hair restored, under the influence of constitutional treatment. Some stimulating washes may be employed in conjunction, such as an infusion of hyssop; borax, in a spirituous lotion; tincture of cantharides, glycerine, and some essential oil. The head should be well washed with the yolk of egg, or borax in almond emulsion; afterwards carefully rinsing with warm water, and then apply the following lotion:

R $\bar{y}$ .—Spirit ammon. aromat.,  
Tinct. canth.,  
Glycerine,  $\bar{a}\bar{a}$   $\mathfrak{z}$ ss;  
Aqua rosea,  $\mathfrak{z}$ vi.—*M.*; or,

R $\bar{y}$ .—Tinct. kino,  
“ sang. can.,  $\bar{a}\bar{a}$   $\mathfrak{z}$ iv;  
“ lobelia inf.,  $\mathfrak{z}$ ii;  
Oleum ricini,  $\mathfrak{z}$ ss;  
Cologne,  $\mathfrak{z}$ i.—*M.*

Or try the carbolic acid dissolved in glycerine, which is often used with very good effect. All scaly articles must be removed prior to its use, by soap and water. The lotion which I found best, is one drachm of the acid to three ounces of glycerine, applied night and morning. Carbolic acid may be dissolved in acetic acid, and forms an excellent application for some of the eruptions—the vapor of iodine, &c. Soap and water, and rubbing with a coarse towel, should not be neglected.

*The syphilitic diseases of the skin* are to be treated with the alteratives already recommended: irisin, ampelopsin, corydalin, &c.; iodine, iron, sulphites, gold, &c. The con. comp. stillingia alterative is an excellent remedy, alone or combined, or in alternation with other remedies. It improves the powers of nutrition generally, and may be

given here with decided effect. This is a remedy of peculiar service when there is great weakness, with great irritability, when tonics and diet cause feverishness, when nothing seems to agree. It is a good alterative in syphilitic diseases of the skin, which are dependent upon a degenerated condition of the blood. It has no equal;—we say this from an extensive experience of its use. Its action is mild and certain, and cannot, under any circumstances, produce disorganization of the bones and soft parts.

*Iodine* is of great service in an alkaline form, such as the iodide of sodium in the stillingia alterative. Alkalies, so combined, are of great service, not only neutralizing acrid secretions in the stomach and bowels, but aid materially in altering the abnormal condition of the blood. They are especially indicated if the patient has any gastric irritation; such remedies as sulphite of soda, or potassa, or magnesia. The basis of a very rational and extremely successful treatment of these skin affections, consists in the administration of these sulphites, in alternation with other alteratives, and at the same time the use of highly animalized diet. Chemistry has shown in an interesting manner, the reason of this fact; which is, that the phosphates are passed in the urine of syphilitic patients, to an extent many times greater than natural.

We would, also, give *bark* occasionally, when we desire a sudden impression on the system—either alone or combined, to suit the indications; its effects are always manifest, producing a refreshing and exhilarating effect on the system, which nothing can equal. We would give *iron* also. Pyrophosphate of iron is a valuable preparation; no tonic acts so powerfully, so favorably, and so promptly, prepared in a liquid form—easily to administer, and rapidly absorbed. The iodide is a good preparation—iodide of iron where we have a strumous habit. In some cases cod-liver oil or glycerine, seems to promote nutrition, and in this way becomes serviceable. Various combinations of the vegetable tonics and alteratives will be found most serviceable. We must attend specially to the indications of the case, the secretions, &c. But one thing we must not do, we must never weaken our patients by purgatives, nor must any remedy be given as a specific, nor without consideration. Syphilitic skin affections are prevalent; indeed, of a very aggravated form where mercury is used; indeed, in some cases, we find them to be direct results of mercurialization. Under the one absorbing idea that if ever an alterative impression is desired, under any condition whatever, instead of employing hygienic measures, and more harmless, but equally more potent remedies, some form of mercury is administered in every prescription, and the whole capillary system of persons who are frequently unwell, soon become impregnated and poisoned by this subtle mineral. The consequences of such a system of medication, whether in the tiny globulist, or in the more daring allopath, present themselves to our view in dyspeptic affections, chronic headaches, pains in the limbs, alveolar absorptions, inveterate ulcerations, where no specific taint has been suspected, and in various degenerations.

The evil does not stop with the unhappy patient; for where important elementary tissues are deteriorated in the parents, a constitutional

infirmity will be impressed on the offspring, which, if it be not syphilitic or strumous from birth, is certainly the condition most favorable for the phenomena of such a diathesis—when some co-operating influence shall attack the sufferer. The interests of humanity, the honor of our profession, demand of us who witness and observe the whole ramifications of this destructive agent, that we should utterly condemn, with the most unqualified protestations, its use as a medicinal agent.

In most skin affections, if the health be even slightly impaired, they come on rapidly and then remain stationary. There is nothing gained by waiting; but the patient must at once be put upon such a course of treatment as we have indicated. We think that the iodide of sodium is one of the very best preparations of iodine. It has several decided advantages; its taste is much less disagreeable than the iodide of potassium. It is better borne by the patient, and less likely to occasion iodism. It has succeeded often and again where the other salts have failed; but over the truly scaly diseases the iodides have not quite so much influence. The preparations of gold answers better here. Vegetable alteratives, as the comp. tinct. of corydalis, or an infusion of equal parts of alnus, rumex and Jeffersonia, alternated with the simple bitter tonics. In addition, I have derived great benefit from an alkali, such as a solution of the acetate of potash in usual doses.

A good form of treatment consists in giving the following :

R<sub>y</sub>.—Podophyllin, gr. vi ;  
 Irisin, gr. xxx ;  
 Corydalin, ℥i ;  
 Oil of stillingia, q. s.—*M*.

Ft. pill xxx., one every three hours.

It is notorious that strumous subjects bear syphilis badly, and the eruptions in such subjects assume very anomalous conditions. Sudorifics, or some of the vegetable decoctions, with the carbonate of ammonia, or small doses of sulphur, with sulphur baths, are of great utility as adjuncts; but must not take the place of our great anti-syphilitic remedies. Cleanliness is all important—the alkaline bath.

Vesiculæ are characterized by more constitutional disturbance than the first form, and are sometimes transformed into crusts or scabs.

Syphilitic tubercles of the skin are deep-seated, solid, circumscribed elevations, containing neither lymph or pus, either isolated or grouped, generally complicated or associated with a scrofulous, scorbutic or herpetic tendency, or diathesis. If there be no contra-indications, the treatment may be commenced by the exhibition of the iodides of sodium, or potash, with the other alterative treatment, the vapor bath, cooling lotions, composed of the chloride of lime, nitrate of silver, the aromatic wine, astringents and sedatives. The iodides are best given in the stillingia syrup, or in decoction of bark. If the disease does not get along well under one remedy, resort to another at once; give the patient a fresh atmosphere; watch his health carefully.

If the patient has been mercurialized previously, or if he suffers from salivation or mercurial tremor, the iodide of sodium or potassium



must not be given, as it seems to aggravate the symptoms. In these cases the chlorate of potassa will be found an excellent remedy, and for iodine give the pure tincture.

In the treatment of pustular syphilis, if the health be good and the disease recent, the patient might be dealt with actively, the secretions might be freely stimulated, and the diet must be well maintained; we must give alteratives and vapor baths. To these sores various applications may be used; the carbolic acid in glycerine might be tried, or they might be washed with an astringent and soothing wash, or they might be covered with collodion, or the solution of gutta-percha in chloroform. As a local application glycerine, medicated, lotion of borax and morphia, equal parts of glycerine and muriated tinct. iron. The application of the chloride of zinc followed with hydrastis. A formula of utility is:

R<sub>y</sub>.—Oxalic acid, gr. xx;  
 Carbolic acid, gr. x;  
 Aqua, ℥ii.—M.

The iodide of sulphur is a very efficient remedy. In certain cases, the local application of the liquor soda chlorinated is a good remedy. The tubercles usually disappear under its use. In very stubborn cases, the extract of *phytolacca decandra*, or the *trifolium melilotus*, may be used with good success. If they secrete much pus, they might be dusted with hydrastin, or myricin. Ointments are unsuited to these ulcers, and under ordinary conditions the collodion or gutta-percha dressing, to defend them from friction and atmospheric influence, answers well.

In this form of the affection I put great reliance on sedatives. Batley's solution, with chloroform, is of great value; its administration is almost always followed by good results. It is of especial use where the nights are bad, and the patient emaciated and feeble, where a general irritability is wearing out the patient. In such cases anodynes act almost magically. They may be combined with other remedies. Even the application of an aqueous solution of opium to the pustules, with essence of beef; the vapor bath and iodide of iron will not give such salutary results as anodynes. Pustules are usually complicated, and require modifications in the treatment suited to the exigencies of each particular case. There is no one of the syphilodermata which require special consideration in the treatment. All are managed upon the same general plan; even in the most depraved states, such as rupia, especial attention should be given to building up the health of the patient to a normal standard. With this view, our concentrated vegetable alteratives, iron, gold, bitter tonics, good nourishment, should be carefully given, and every hygienic measure brought into full play. Baths are essential. In cases of psoriasis, where our anti-syphilitics fail, the administration of muriate of gold and platinum is of great benefit, either alone or alternated with yellow dock and stillingia. The fluid extract is convenient of exhibition. In sloughing ulcers, a solution of bromine, in alcohol, in the proportion of twenty to forty drops of the former to one ounce of the latter, makes an excellent

wash; and a solution of permanganate of potassa, fifteen grains of the crystals to two or three ounces of water, is fully as good, if not better. Both these lotions may be used with great advantage in cases of phagedenic ulceration, which occasionally supervenes in tubercular skin disease in bad conditions of the system.

*Mucous patches* may be locally treated with solution of nitrate of silver, tannin, permanganate of potassa, sulphate of copper, &c. It is the constitutional treatment which cures them. Local remedies are merely accessory, and not of importance unless there be extensive ulcerations. Sometimes a lotion of nitric acid or of creosote, in the proportion of twenty minims to the half-pint, answer very well. The exhibition of thuga, aided with other remedies, is often successful.

**SYPHILITIC ONYCHIA.**—The matrix, or root of the nail, is very commonly affected with syphilitic inflammation; sometimes occurs as an isolated symptom of constitutional syphilis. The treatment must be constitutional; local treatment has no influence over the disease. If, however, the pain is very great, opium, or morphia, or hyoscyamin may be applied locally in aqueous solution. Cold water, or the lead and opium lotion, &c., are always soothing.

Syphilitic warts, excrescences, vegetations, condylomata, of varied form and appearance, upon the skin or edges of the mucous membranes. These excrescences appear on the skin, or muco-cutaneous surfaces of the male and female organs of generation. They are variable in appearance and consistency. In ordinary cases these excrescences may be removed by bathing with a strong solution of the muriate of ammonia, or sanguinarin and phytolacin, savin and alum. With these applications the warts may be sponged freely several times daily. The local application of a saturated tincture of thuga is effectual. In mild cases these remedies will succeed. If they are hard, if they are of old standing, or do not yield to these remedies, it becomes necessary to employ escharotics, the best of which are chromic acid, strong acetic acid, or even the charcoal paste. Ligation and excision are also resorted to.

**SYPHILITIC IRITIS.**—The treatment must be very active. The disease progresses with extraordinary rapidity; it occurs early, and the pathological changes are of such a character that vision is often lost before treatment is fairly under way. Prompt and energetic measures, with discretion and good judgment.

In iritis keep the pupil dilated, with atropia, one grain to an ounce of distilled water, dissolved by the aid of two or three drops of acetic acid. One drop of this solution in the inner canthus of the eye thrice daily, or insert a square of the gelatine atropia paper; either is rapidly diffused over the whole surface of the globe, and besides dilating the pupil, lessens, through its sedative action, the pain and irritation. If neither of these agents be convenient, the extract of belladonna diluted with glycerine, should be smeared around the eye and forehead, and the application renewed twice daily.

In this complication, the most powerful constitutional treatment, with baths, and that sheet-anchor, quinine; give quinine, combined with the other remedies, alteratives, iodine, iron, gold, and, above all,

subdue restlessness, irritation, and give the patient sleep, rest—comfortable sleep—perfect rest.

In iritis the system is terribly broken down, and requires active means for its restoration: essence of beef, eggs, good and nourishing food, supported by iron, vegetable tonics, and strict attention to hygienic measures already recommended. Local applications do more harm than good; glycerine, wash of chlorate of potassa, or hydrastin, hamamelin, sassafras pith, or decoction of slippery elm. Let the patient have fresh air, let it reach the eye. Counter-irritation to the back of the neck is also useful.

In some cases purgation, vapor bath, gelsemin, or the C. tinct. serpentaria. As an anodyne here, lupulin and hyosciamin. A collyrium of hydrastin and aconite is used with advantage.

Secondary or constitutional syphilitic ulcerations of the mucous membranes are extremely common. They are seated on all parts of the mouth. We have, also, superficial ulcerations upon the tongue, the inner surface of the lips. These must be attended to by the specific treatment, regulated diet, and frequent gargles, more particularly those in which tannin, or hydrastin, or hamamelin form an ingredient.

R̄.—Tannin vel hamamelin, ℥;   
 Spiritus vini gallici, ℥i;   
 Aqua rosa, ℥vi.—M.

Ft. gargle.

R̄.—Tinct. myrrh, ℥i;   
 Mellis cuprati, ℥ss.—M.

Touch the ulcers with this, night and morning, or try diluted nitric acid, or sanguinarin and phytolacin. In most instances they are extremely difficult to cure. These apthous or superficial ulcerations in the mouths of patients who have suffered from syphilis and have irritable mucous membranes, are generally due to mercury, and not to syphilis. It is remarkable that such patients suffer much from dyspepsia. Mercury aggravates this condition of the mouth in an astonishing degree, whilst they usually subside under the use of mild astringents, tonic gargles, chlorate of potassa, or

R̄.—Acid hydrochloric, ℥i;   
 Tinct. cinchonæ, ℥i;   
 Aqua distilled, ℥vii.—M.

Ft. gargle,

or rhusin; the administration of small doses of hyosciamin, an infusion of iris versicolor or hydrastis with lime water. The mineral acids, the nitric and sulphuric, followed with washes of chlorinated soda, carbolic acid, myrrh. In some cases we have syphilitic ulcers of the throat, pharynx, fauces, appearing under several forms. These ulcers may occur with or without different forms of cutaneous eruption, pain in the head and limbs, loss of hair, and other forms of constitutional infection; also, with the most varied conditions of the general health.

Patients who have suffered from constitutional syphilis, frequently complain of pains in the throat, increased by deglutition, and referred to various points about the larynx and pharynx. It is evidently a sort of neuroses, no lesion being detectable.

The treatment of the venereal ulcers of the throat resolves itself into local and constitutional.

*Local treatment* is important. The ulcers should be touched from time to time with nitric or muriatic acid, followed with gargles of various kinds. With this local treatment should be associated constitutional treatment, according to the nature of the case; and here so varied are the conditions that it is impossible to lay down any fixed rules.

Remedies likely to be of service are the vapor bath, the decoction of phytolacca, the mineral acids, sulphites, iodine, or the hydriodate of potass, good diet, fresh air, &c. The preparations of gold in inveterate forms of syphilis, tonic remedies, such as will aid nutrition and good diet, is the best plan of treatment.

### TERTIARY SYPHILIS.

After the lapse of six months, and often longer, the syphilitic poison exhibits its action more decidedly in the deep-seated tissues, such as the cellular tissue, muscles, bones, and periosteum, testicles, and other viscera, as well as the nervous system, and this is called the tertiary stage of the affection.

If the treatment of the secondary affections has been judicious and prompt, the morbid matter of syphilis is overcome before this period is reached; or if not followed by complete success, the course of the disease is so much interfered with, or broken up, that we may not have any uniformity in the appearance of this stage.

*Syphilitic sarcocoele, or orchitis*, is among the earliest of the tertiary accidents, and is sometimes, though rarely, met with among those of the secondary period. It commences without pain, and generally pursues its course without this symptom being present. The organ increases slowly till it becomes, perhaps, as large as a small orange, and is inconvenient on account of its size and weight.

The disease is usually limited to the body of the testicles—the epididymus is seldom involved—rarely suppurates.

When the disease is limited to one testicle, sexual desires may still exist. This is generally the case; but sometimes both testicles are affected, and then the animal passion becomes, by degrees, entirely extinct. Syphilitic induration of the testicle is the result of a slow and indolent inflammatory process, followed by the deposit of a peculiar material-like connective tissue, which obliterates the seminal canals. But under appropriate treatment, the canals are re-established.

In the earlier stages of simple sarcocoele, an alterative course, suited to the age and constitution. For this purpose the remedies already mentioned are most efficacious. The iodides, with medicated baths. As local applications, frictions, with iodine ointment, or extract belladonna or conium, the compound iodine ointment, the ointment of the



iodide of lead; the latter I prefer. Compression here is useless. Counter-irritation is of great benefit. Where sarcocele occurs, as a complication, and other and more important syphilitic symptoms are present, the treatment requires modifications to meet any indications.

*Gummy Tumors* are only met with after syphilis has existed many months. They are produced in the submucous or subcutaneous cellular tissue, and are also found of precisely the like histological characteristics in the muscles and viscera. Sometimes isolated, sometimes two or more apparently fused together, presenting a nodulated appearance. Some patients have a large number, and are accompanied by other syphilitic affections; by a more or less depraved and anemic state of the system.

The internal treatment should consist of the administration of our concentrated alteratives, with the iodides of potash or iron, either alone or in a state of combination; medicated baths also assist powerfully in the resolution of these tumors.

If the skin covering the tumor has become thin, and is of a deep-red or livid color, we shall seldom succeed in dispersing it. In this diseased integument, one or two spots of ulceration soon appear, which spread rapidly till the whole covering of the tumor is destroyed. When this is the case, we have an ulcer of most formidable character, which sometimes penetrates, to a very great depth, in the soft parts of the extremities, laying bare muscles, producing caries, necrosis, or absorption of the bony tissue to a greater or less extent. In such cases the constitutional treatment is still our chief reliance; but the local aspect of the sore will require a treatment suited to its varied aspects. Should it become phagedenic, it must be treated, with its destruction, with bromine. Afterwards weak lotions of chlorate or permanganate of potash, or dilute nitric acid, or carbolic acid, or creosote, in suitable proportions; these ulcerations require, from time to time, superficial cauterization.

*Osteoscopic pains* are extremely common during the tertiary period. They are due to incipient periosteal, or osseous disease, and are worse at night. The bones most frequently attacked are those of the cranium, tibia, clavicle, radius, ulna, sternum, the inferior maxillary and fibula. The pain is of the most intense character, aggravated by the slightest touch. Loss of sleep, extreme nervous irritation, wear the patient completely out—make them uncomfortable and weary of existence. If not arrested, we will have periostitis, osteo-myelitis developed, and, as the results, *exostosis*, *caries*, and necrosis supervene.

The pains in the bones are in a great measure, though not totally, due to the use of mercury as an agent; too frequently given for the cure of antecedent constitutional syphilitic symptoms. The treatment best suited to these pains consists in the administration of iodine or gold, or what I regard still better, the chloride of platinum and sodium; it is very applicable here; it often gives wonderful relief. It is efficacious either alone or with gold, or in alternation—it produces no bad effect upon the system. The bromide of potassium, combined with colchicum and aconite in some cases; also, our concentrated alteratives in solution, especially the corydalin with cornin and some

anodyne; if the parts are tender, the pain fixed and not fugitive, counter-irritation may be tried. The phytolacin is one of the very best remedies for the removal of those pains attending syphilitic affections, mercurial or otherwise. It excites the whole glandular system, and is specially indicated in the secondary, as well as the tertiary forms of the affection. The *asclepias* or *cupatorium* answers a good purpose as a diaphoretic; the acetate or citrate potassa. To aid these remedies, the warm or vapor bath. If we have rheumatic symptoms, *macrotys*; to the affected part, equal parts of *conium* and *belladonna*, softened with tincture of *aconite*, so as to spread in plaster form, or a poultice, or fomentation of poppy heads, or hops, or the *polygonum*, answers a good purpose. As the disease progresses, keep up the system with tonics, iron, a free use of stimulants. Sometimes the irritating plaster, or painting with iodine, or the application of the *belladonna* and *conium* plaster. A valuable application is formed of equal parts of powdered *podophyllum* and *thuga occidentalis*, made into a poultice and applied.

At this particular stage, iodine baths are of great value, on account of the great extent of the skin, which furnishes the means of introducing a considerable quantity of iodine into the circulation, without deranging the digestive functions—an object of great importance when medicine disagrees with the stomach. In the use of iodine for a bath, double the quantity of potassium should be used with the iodine, as a solvent, in a wooden bath-tub; the iodine and iodide should be dissolved in a small quantity of water before they are added to the bath, this facilitates thorough diffusion; a gallon of water to three grains or more of the iodine. These baths should be resorted to three or four times weekly.

The iodine vapor may also be used in various forms; the vapor of iodine from a spirit lamp.

*Nodes*.—Those enlargements of the bones termed nodes, appertain to the natural history of the progress of syphilis, if badly treated, or suffered to go unchecked by remedies. Nodes arise as a consequence of primary venereal ulcers, when the disease has become constitutional from the absorption of the poison, and the poison has penetrated deeply into the system. The bones are about the last part to become affected.

Nodes, as they are commonly termed, result from an effusion or deposit between the periosteum and bone; the result of inflammation affecting one or both of these parts. Very commonly dependent upon a superficial inflammation of the bone itself. These effusions between the periosteum and bone may consist of serum, pus or lymph. Again, nodes are produced by an effusion of a proper osseous matter, similar to the provisional callus first thrown out in recent fracture, or a gummy tumor. Some nodes present to the feel a true enlargement of the bone itself, or lymph, with the elements of cartilage. Syphilitic exostosis of any kind is not usually attached to the bone, unless within the cranium. Usually developed from the periosteum, merely resting on the bone, which, from its periosteum being detached, is liable to pass into a necrosed condition. Exostosis are met with in

the cranium, and in this situation are liable to produce extensive ulceration, disorder of the nervous system; convulsions and paralysis may occur from pressure on the brain.

It is possible that venereal diseases of the bones and periosteum, but more particularly, inflammation of the latter, causing effusion between it and the bone, may be mistaken for or confounded with periostitis, arising from other causes; and, more particularly, where these are of a rheumatic origin and character. The history of the case, the occurrence of syphilis, being complicated with other diseases, the development of nodes, by nocturnal pains—the seat of pain, &c., &c.

Our prognosis in venereal diseases of the bones and periosteum, is not always unfavorable. If the health be fair, but if the constitution has been impaired by poverty, debauchery, bad living, mercury and syphilis, all contributing their share to the destruction of the patient, we have a disease to contend with which will baffle our skill, our treatment, however faithfully it may be carried out by both physician and patient.

*Caries and necrosis* generally result from the separation of the periosteum from the bone, to which it belongs, and through which its supply of blood is mainly kept up. This may be the result of the deposit of the same form of matter found in the gummy tumor, in the marrow, giving rise to a syphilitic osteo-mylitis. The bones we have already enumerated as being particularly liable to osteoscopic pains, are those which suffer most from caries and necrosis; but no bones are exempt from their attacks; the bones of the cranium and face, such as caries and necrosis of the vomer, nasal, palatine, are apt to be so in strumous cases. In all, however, the disease has originated through the loss of the periosteum.

The *treatment* naturally divides itself into constitutional and local. By the former, we endeavor to correct the poisoned condition of the system, from which the local disease has its origin, and upon which it depends. By the latter, we endeavor to remove the local cause which such a condition of the system generally produced.

All authorities are agreed on the method of cure here, a powerful alterative course for the cure of syphilitic diseases of the bone and periosteum. In every affection of the bones, iodine, either as the iodide of potassium, or ammonium, or sodium, in the alterative syrups, with the concentrated vegetable alteratives and tonics. In alternation the chloride of gold and soda, as one of the very best of alteratives, one of decided efficacy. The dose that I usually give is from one-twelfth to one-thirtieth of a grain, which may be given either in pill or solution.

R<sub>y</sub>.—Mur. gold et soda, gr. ii;  
Aqua distilled, ℥i.—*M*.

Dose: twenty drops ter die.

R<sub>y</sub>.—Chloride gold et soda, gr. ii;  
Ext. gentian, q. s.—*M*.

Ft. forty pills.

Externally it may be applied to scrofulous or syphilitic ulcers, in a solution or ointment. The treatment must be essentially tonic, aiming at the restoration of the general health. The above remedies may be alternated with the phosphates, &c., the *C. tinct. corydalis*, with iron, quinine, hydrastin. Baths, &c.

Venereal diseases of the bones are now treated more successfully by the above remedies than by the old method. Venereal nodes, too, yield more rapidly to the above treatment, and to the use of iodine. At this stage of the affection we have derived great benefit from the preparations of phosphorus—either the phosphoric acid or the tincture of phosphorus, or some of the other combinations. In alternation we would suggest a decoction of *celastrus*, *rumex*, and *scrophularia* freely, with the occasional use of the hydrochlorate of ammonia.

The circumstances which lead us to select gold as a remedy in venereal disease, in its tertiary stage, is its great power and utter harmlessness, being prompt in the relief of protracted cases. Also, the use of the iodides in an infusion of gentian, or decoction of *stillingia*.

The local treatment of venereal diseases of the bones and periosteum is of some importance. They may be treated locally with friction, blisters, or solution of tincture of iodine in glycerine. They should not be incised, unless it is very evident that a large quantity of pus is present, and is burrowing under the periosteum. If much distension be present, it is well not to lay the abscess open with a lancet, but to puncture with a very fine trocar. This mode of practice will relieve the distension, and give time for other treatment to be brought to bear; at the same time the puncture will be so small that no air can possibly be admitted, the surface of the bone will not be exposed, and the risk of caries and exfoliation will certainly not be increased.

Syphilitic disease of the nostrils and nasal fossæ often begins with the symptoms of ordinary cold; the nose is dry and uncomfortable, the voice hoarse, a fetid muco-purulent discharge, mixed with blood, &c., &c. These affections of the nasal fossæ very commonly occur as isolated symptoms of syphilis.

The treatment is constitutional and local—the latter consists in the application of carbolic acid, of a solution of gold, injections of antiseptics, of lime, pyroligneous acid. Nitric acid is a useful remedy here, internally, in four drop doses thrice daily, and at the same time a gargle, composed of a drachm of the pure acid to six ounces of water, may be applied locally. This is beneficial—so is nitrate of silver, in the proportion of five grains to an ounce, or a strong solution of hamamelin. The following may be administered with manifest benefit: acid sulph., borax, lachesis, phosphorus, sulphur, syr. iodide of iron.

One of the most formidable varieties of constitutional syphilis is ulceration of the mucous membrane of the glottis, and larynx. Syphilitic ulceration of the larynx generally follows or accompanies other similar diseases of the nasal fossæ, throat, pharynx, &c. The symptoms are loss of voice—hoarse, husky, or totally lost—the patient expecto-



rates a fetid pus, and portions of sloughs mixed with blood, &c.; ulcerations, with constitutional syphilis.

We frequently meet with syphilitic disease of the lungs, which takes place in many constitutions in the latter stage of the affection; the body wastes, the appetite is lost, the patient becomes anemic, strength diminishes, night sweats, diarrhœa sets in, and we may have a fatal termination. The syphilitic virus is probably never converted into tubercle, although syphilis, by its deleterious effects on the constitution of the parent, may produce a state favorable for the development of that affection.

If such a state of constitution be due to the poison of syphilis alone, it is quite clear that those remedies which will neutralize or eradicate the poison, are the only ones from which the patient is likely to derive benefit, permanent relief; and experience bears out the fact of the failure of all remedies, except anti-syphilitics.

The remedies best suited to the forms of the disease, are the concentrated alteratives, gold, iron, baths, residence in a fresh, pure, dry atmosphere.

Where the mucous tract is very much ulcerated, nitric acid, and as a stimulating and deodorizing wash, the chlorate or permanganate of potash. Where the blood has, as it were, a tendency to dissolution, nitric acid is a proper remedy; even if inflammation of the lungs should occur, nitric acid, with the sanguinarin, will be good.

If the syphilitic poison concentrates itself on the liver, spleen, kidneys, lycopodium, with muriate of gold, is worthy of a trial.

The diseased conditions of the internal viscera cannot be brought under the influence of local measures, even if their existence should be made out during life. Where there is reason to suspect their presence the general treatment of tertiary syphilis should be enforced.

### TRANSMISSIBILITY OF SYPHILIS.

The transmissibility of constitutional syphilis, by direct inoculation with the secretions of secondary sores, may be regarded as an established fact, as well as the blood and secretions of the body. It has been communicated frequently in vaccine matter. The syphilitic virus is often transmitted by means of vaccination, and the child so affected may become the means of transmitting the disease. The practical importance of this fact should not be overlooked, and can scarcely be over-estimated. It should lead to the utmost care being practiced, both as regards the lymph and the manner of performing the operation.

In regard to the possibility of communicating syphilis through the physiological secretions, no doubt can exist. I am disposed to think that the secretions of syphilitic patients are capable of inducing syphilis.

Syphilis may be communicated from the parents to the ovum, foetus in utero, or the infant.

The virus may be transmitted with the semen by cohabitation, by either parent; the foetus may be thus contaminated.

The infant may contract disease during labor, by coming in contact with parts of the uterus, vagina, labia, &c., which may be the seat of the various forms of venereal taint. The infant may become diseased after birth, through the medium of the milk, &c., the mother or nurse being affected. The disease may also be propagated by a diseased child to a healthy nurse, and vice versa.

Two forms of syphilis are more especially due to direct contact or infection, and not dependent upon a constitutional disease. These are purulent ophthalmia, and ulcers in the mouth of an infant who has taken the breast of an infected nurse, whose nipples may or may not present marks of ulceration—the one due to a contamination during parturition—the other to infection after birth. But we must not suppose that the purulent ophthalmia of infants is invariably syphilitic. It is not so. It may be due to many other causes, such as leucorrhoeal or irritating secretions, or ulcers or erosions; but if it occur in infants, born of syphilitic parents, it is difficult to assign it to any other cause.

In most cases we have all the genuine constitutional symptoms; we may have purulent ophthalmia, ulcers in the mouth, chancre or ulcers in various parts of the body, discharges from the vagina or urethra, and even buboes, and latterly, the constitutional forms of disease, consisting chiefly in affections of the skin. Affections of the bones are rare.

The characteristic snuffing, the puckered mouth, the position of the eruption round the lips and anus, in addition to the peculiar and fissured appearance of the surface from which the scales have fallen, will seldom fail to convert a suspicion of the disease into positive certainty.

Occasionally infants, at the moment of birth, present the symptoms of syphilis, and in addition to such symptoms, are shriveled and emaciated, the skin hanging in folds in different parts of the body. It more frequently happens that these symptoms are not manifested till many days, weeks, or even months after birth.

Many interesting questions propose themselves for our consideration in reference to the treatment of pregnant women, nurses and infants. How are they to be treated? Some have supposed that an alterative course predisposes a pregnant female to miscarry. This is untrue. Pregnant females, with constitutional syphilis, much less frequently miscarry, when they are submitted to a proper alterative treatment, than they do if the treatment is postponed till after delivery. The disease is always more to be dreaded than the treatment. If the treatment be adopted, and conducted cautiously, there is very little to dread, either on the part of the female or the fetus. The mother is likely to be cured, and a healthy child born. If it be neglected, premature labor, with death or formidable disease in the child, are almost certain. For confirmed constitutional syphilis, or well-marked primary sores occurring in pregnant women, a modified treatment, sufficient to meet the merits of the case, is to be adopted, and persevered with until the symptoms have yielded.

It is certainly the correct practice to submit a pregnant woman, affected with syphilis, to an immediate and direct specific treatment.

All authorities agree on this. The result of modern experience shows, that a pregnant female, constitutionally diseased, may be treated with perfect safety, with a strong probability of cure, both to herself, and the eradication and prevention of disease in the fœtus in utero.

When a female is affected with primary ulcers on the genitals, near the time of parturition, they should be destroyed by some caustic, to protect the infant from infection on the one hand, and the obstetrician on the other. I have seen numerous instances of infection in the attendant in such cases, as well as infants, literally poisoned by the virus.

As to the employing syphilization as a preventive of syphilis, there is not a word to be said in its favor, nothing to commend it. It is very evident that it cannot be rationally submitted to. If, however, it be discovered to be a permanent preventive, it will establish for itself a reputation not possessed by any other means.

### CONSUMPTION.

Such is the prevalence, and such is the magnitude of this disease, that it deserves a more than passing consideration. When we reflect that millions are annually carried off by that direful scourge, the great importance of a correct knowledge of its origin and treatment cannot be too forcibly impressed on our minds. In all civilized countries the disease is common, and the average mortality is about one-fourth to one-fifth of the population. This not only shows the fatality of the disease, but the insufficiency of the various modes of treatment.

Phthisis means a consuming, a wasting; but it is now chiefly restricted to that species of wasting disease which consists in the occupation of the lungs by tubercular matter, and the changes which that matter produces and suffers. But it is an error to suppose that the disease is restricted to the lungs. The lung affection, that is, the deposition of tubercles there, might be sufficient in time to destroy life; but its fatal tendency is aided or accelerated in most cases by diseases of a like character in other organs. The pulmonary consumption is but a fragment of a great constitutional blood malady. Phthisis generally manifests itself by an assemblage or combination of symptoms, the most prominent of which are cough, emaciation, debility, hectic fever, purulent expectoration. These symptoms are due to an impaired physical condition of the lungs, in consequence of a deposition in the air-cells, and in the substance of the lung of a substance possessing a yellowish-white color, of the consistency of cheese, forming masses of variable size, called tubercles. These bodies increase in magnitude by aggregation, by affinity, as the disease progresses onward, and exhibits a strong tendency to pass into a softened state, and are removed in the act of coughing, in the shape of a purulent expectoration; the result of this is the formation of abscesses, vomica or excavations. The most common period for the occurrence of phthisis is between the ages of eighteen and thirty, but no age is exempt from its ravages. The nature of the disease is no doubt identical with scrofula—a perverted or broken down condition of the blood corpuscles. At first,

tubercle is deposited in the state of a fluid exudation from the capillaries in the same manner that lymph is. In this condition it insinuates itself into the interstices of the pulmonary parenchyma, passes through the lining membrane of the air vesicles, and fills their interior. A miliary tubercle may in this manner block up from three to twenty of these air vesicles. It now coagulates and forms a solid foreign body, which can only be removed by being again broken down, and rendered capable of either being absorbed or excreted. Thus the miliary or infiltrated forms, whether gray or yellow, after a time soften, a process which may commence at any part of the mass, and gradually affects the whole. This softening is a disintegration, or slow death of the tubercular exudation, constituting true ulceration, which is more or less extensive, according to the amount and extent of the morbid deposit. When recent, the pulmonary parenchyma in the immediate neighborhood is more or less congested, and when chronic, it is thickened and indurated, often forming a capsule, which surrounds the tubercular deposit. The pleura is also liable to be affected; when recent, it presents soft fibrinous exudations, with more or less adhesion; whereas, when chronic, these become fibrous. The bronchi are necessarily involved; their terminal extremities are among the first structures affected, and as the tuberculosis proceeds, all the appearances characteristic of chronic bronchitis are produced. As the ulcerative process extends, the lung is more and more destroyed; the excavations become larger and more numerous, until at length it can no longer carry on its important functions, and the patient dies, or the fatal result, as very commonly happens, is hastened by disease in other organs. The ulcerative destructive tendency of the tubercular exudation has generally been supposed to be its chief characteristic; but there are very few cases in which its progress is uniform. It is continually checked, and for a time slumbers; and all morbid anatomists have recognized, even in the worst specimens of tubercular lungs, numerous cicatrices and evidences of attempts to heal. These attempts are more or less perfect, and when ineffectual, it is owing to the circumstance that as one portion of the lung cicatrizes, another becomes the seat of recent tubercle.

Cicatrices present different appearances, according as the cavities from which they were formed have been superficial or deep-seated. In the one case, it will generally be observed, that the pleura are more or less adherent and thickened, and frequently form an external boundary to the tubercular cavity. As the matters which the cavity contains are expectorated or transformed, the lymph gradually contracts, draws the lung closely to the thoracic walls, from which it cannot be separated without great violence. Sometimes, however, it is deeper, the adhesion very slight, or does not exist at all. In this case, when the walls of the cavern contract, the pleural surface of the lung is drawn inwards, and in this way the irregular puckerings visible on the surface, are produced. Occasionally no traces of tubercular matter are discovered within, or in the neighborhood of these cicatrices. Under such circumstances, they appear to be formed of dense fibrous tissue; and the parenchymatous substance in their



vicinity is of a bluish-black color, due to increased deposit of pigment of induration, chronic exudation. More generally, however, the contraction and puckering will be found to have occurred around tubercle which has undergone various transformations. Occasionally there are round masses of crude tubercle, surrounded by a cyst. Often they are to be found white, and of a chalky matter. At other times, the whole has become calcareous, with numerous irregularities. These cretaceous and calcareous conditions may remain in the lungs an indefinite time, or in some cases are evacuated through the bronchi. Such appear to be a few of the modes in which tubercular ulcers heal. They occur exactly in the same manner as abscesses in other parts of the body,—the result of simple exudation; and that the process in both is identical, is proved by the frequency with which in the latter calcareous deposits also take place. If, then, the further deposition of tubercle could be arrested, there seems no reason why cavities in the lung should not heal with the same frequency as ulceration or abscesses in other internal organs.

It is supposed by most physicians that consumption is incurable, and nothing is more common than for physicians to give up their patients under such circumstances. But we, as Eclectic physicians, should not be too hasty in arriving at such a conclusion, more especially in this age of progression. Many well attested cases are known and recorded, where consumption has been cured, either spontaneously, or by the use of proper remedial agents. I have known cases recover with the loss of one of the lungs, or one or more lobes. Indeed, it is beyond dispute that the lungs recover from disease the same as any other organ, though less frequently, provided the powers of nature are sufficient to bring about a healthy action, all of which show the propriety of pursuing a rational and judicious course of treatment; besides, it is our duty to alleviate disease, when we cannot cure, and which can always be done in the worst stage of this formidable malady. The fact that cicatrices are found on the lungs in post-mortem examinations, showing that they had had consumption, but died of some other disease, proves beyond dispute the curability of the disease. It is a remarkable and important fact that tubercles, when they affect the lungs, are not deposited indifferently in all parts of those organs. It is in the upper lobes, and in the upper and back part of these lobes, that in nineteen cases out of twenty, they are most profusely deposited. In the same part they are largest, most numerous, even when they are scattered throughout the whole lung; it is here, also, they first ripen, grow soft, and become ready for expulsion, through the bronchi and trachea, consequently it is here we meet with the largest excavations in the lung. We may accept it as a rule, that the favorite seat of tubercles, is the upper part of the superior lobes of the lungs. It may also be noticed that the left lung is more obnoxious to tubercular disease, than the right; it occupies, by preference, the upper lobes, invading the lower lobes from above downwards. Sometimes one lung only is affected, but generally both, though in an unequal degree.

The causes of consumption are numerous; scrofulous and tubercular

disease are identical; affect almost exclusively a certain class of persons. Some are prone to the development of one, some to the other. It is hereditary; its essential exciting cause is debility. The blood is unusually serous; its vitality is of a lower grade than natural. Adynamia is the characteristic—the blood is *poor*—*poor* in its constituent elements; *poor* in all that concerns life or vitality; nutrition is imperfect; the blood corpuscles do not attain their natural size, consistency and color. There is a superabundance of white corpuscles; from these and other causes its circulation is languid, or weak, and being serous, partial exudations often occur, more especially of its albuminous portion. This exudation is apt to cohere together into minute spherical masses, destitute of acquiring an organized structure themselves, but grow by attracting to themselves, fresh particles from the broken down blood, or exudations. With the hereditary disposition everything almost that will impair or disorder the system, will become an exciting cause, such as a check to the perspiration, the scrofulous diathesis, the transmission of taint from parent to child, which peculiarity of constitution is marked by certain external physical signs, which are indicated by fair hair, a fine, clear skin, delicate complexion, large veins, which are seen meandering under the smooth transparent skin, full, lustrous eyes, the sclerotic of a perfect white color, pouting red lips, voice generally weak, and there is commonly great sensibility to external impression, and vicissitudes of the weather. Certain diseases also predispose to this affection, as syphilis, cancer, scrofula, &c., also certain occupations in which the lungs become exposed to dust and other irritating substances floating in the air, the inhalation of noxious vapors, unwholesome air, arising from imperfect ventilation; the depressing passions, mental alienations, long continued grief, anxiety may also be cited among the predisposing causes. Our manner of living and habits, very much predispose to this disease. In our present state of what is termed our advanced civilization, we have departed from the simplicity of our nature, by running into excesses and practices, very prejudicial to health. Consumption is but little known among people who lead simple lives, subsist on plain food, and take plenty of exercise. Excessive labor, exposure to the vicissitudes of the weather, more especially when the body becomes heated, and then suddenly cooled, as in heated rooms; confined, damp places, as in cities where pure air and exercise are not easily obtained, dancing in heated rooms and cooling off quickly, all predispose to this complaint. Young persons at parties, or in the dance with thin shoes and insufficient clothing, will often get into a profuse perspiration, then suddenly emerge into a cold atmosphere which checks it; the blood is thrown upon the lungs, congestion, and oftentimes the foundation of consumption is laid. Young women who work in factories, whose diet is meagre.

The allopathic system of medication with its mercury and depleting agents, is another fearful source of this affection; indeed, anything which diminishes the stamina and vitality of the constitution. Excesses may also be enumerated as some of the causes, or whatever has a tendency to impair the respiratory organs. Among the chief causes

of phthisis, no doubt the principal one is hereditary predisposition, but this predisposition explains very little of the real cause. Vitality is the effect of so many conditional causes, each liable to vary in intensity, and by that variation to influence the degree of vitality. That it is difficult to tell in what the ultimate change phthisis has its origin, but there is no doubt, although neither chemistry, nor physiology, nor pathology have yet demonstrated it to us, but that the blood of a consumptive is less vital, possesses less red corpuscles, has essentially less stamina, than the blood of one in normal health. Consumption is generally very insidious in its attack, commencing for the most part in a dry, hacking cough, which is usually so slight and painless at first, as seldom to attract the patient's notice, but gradually this slight cough is attended with an expectoration of colorless sputum, at first of a mucous nature, and subsequently of a white or yellowish opaque matter, very like what may be expectorated in an ordinary cold. This state of things may last for some time, undergoing few or no changes, for better or worse; the appetite usually remains good, the different functional derangements are scarcely observable, the consumptive patient feels hardly any falling off in his strength, excepting some slight difficulty in breathing, some slight debility on making exertion or in taking exercise; the pulse, if watched carefully, will be noticed to be somewhat accelerated, and as the disease gains a foothold, the patient experiences flashes of heat, burning and tingling of the face, soles of the feet, palms of the hands, and you will observe that it is towards evening's approach, that these symptoms are well marked. Emaciation, though now slow in its progress, may begin to be appreciable by the attentive physician; this you may not be able to account for at first, because the digestive and assimilative functions are apparently performed in a healthy manner.

These premonitory symptoms may remain for some time, with but little change for months, and even for years, without the patient becoming much thinner, or even becoming aware of this misfortune. Progressively onwards, however, he goes, till at length, cough, fever, pain, increase, and bleeding from the lungs takes place, which as it now advances, creates astonishment and fear. The hemorrhage usually ceasing spontaneously, or from the exhibition of some remedy, and being followed by a diminution of the cough and other symptoms, the patient again deceives himself by the belief that he is recovering. Hemoptysis does not, however, subside in this manner, that is, in an amelioration of the symptoms, but oftentimes with a marked aggravation of all the symptoms, and the onward march of the disease, progressing rapidly towards its termination. The hemorrhage returns more frequently, often and often does it occur, becoming more harassing and distressing towards the last. The symptoms all become worse with an occasional remission, this intermission only tends, however, to deceive the patient, getting him into the belief that he is getting well. But again the cough will return, becoming exceedingly troublesome, keeping the patient from sleep, robbing him of rest, and almost suffocating him by its paroxysms, so violent are they. On the accession of hectic fever, the disease is fully established. This characteristic



phenomena is well marked ; and we have commonly two paroxysms in the course of twenty-four hours, one toward the morning and the other toward evening, or sometimes toward noon, the latter, however, is frequently so slight as to be mistaken, or easily overlooked for fever of digestion perceptible after dinner. True hectic, we may observe, consists of three distinct stages ; to wit, a *cold*, a *hot*, and a *sweating* stage. The evening paroxysm comes on generally, about six o'clock, with a sort of shuddering and a sensation of cold ; yet when we feel the patient's skin, we can observe no apparent change in the temperature of its surface. At this period, we will usually find the patient become restless, he complains of uneasiness, thirst, &c., the mouth is parched and dry, the tongue covered with a white fur, more especially is this true where the stomach and liver are implicated in the disease ; the urine is pale, limpid, and considerable in quantity ; the pulse is small and frequent, and ranges from one hundred to one hundred and thirty in a minute, or towards night, sometimes earlier, sometimes later, the heat of the body diminishes, perspiration breaks out over the entire surface, more profusely over the chest, which is soon followed with sleep. The sweat, at first gentle, now becomes profuse, by which the poor victim on awaking in the morning, finds himself literally bathed, and greatly prostrated in strength.

During the last stage of this fearful malady, a colliquative diarrhœa sets in which soon destroys the little remaining strength, the voice also becomes more and more feeble, and with a few sighs and struggles the patient rapidly sinks. The appetite in consumption is not generally impaired, sometimes it is voracious. Thirst is usually inconsiderable, the mouth is usually moist and the tongue apparently clean. As the disease advances, the mouth and fauces put on rather an inflamed appearance, and sometimes aphthæ form. During the exacerbations, a florid circumscribed redness appears on each cheek, but at other times the face is pale and countenance somewhat dejected. At the commencement of hectic fever, constipation is usually a prevailing complaint, but in the more advanced stages of the fever, the diarrhœa comes on, and this continues to recur frequently during the disease. The sweats also are more violent, and induce great debility.

In the last stage of phthisis, the emaciation is so great, that the patient approximates in appearance a mere skeleton, his countenance is altered, his cheek bones are prominent, his eyes hollow and languid, his hair falls off, his nails are of a livid color, his feet are affected with œdematous or dropsical swellings. To the end of the disease, the senses remain entire, and the mind is confident and full of hope. It is indeed a peculiar symptom, attendant on phthisis, that those laboring under it are seldom apprehensive or aware of danger, and it is no uncommon occurrence to meet with persons who are laboring under its most advanced stage flattering themselves with a speedy recovery, and forming projects based upon the most delusive hopes. Coldness of the extremities generally prevails prior to dissolution. We may recapitulate the symptoms more in detail. We think the change which takes place in the lungs is easily comprehended, when tubercles are deposited in them, and the changes that matter also undergoes. The air passages



which lead to the lungs are very apt to become implicated in the disease. The mucous membrane of the larynx and trachea ulcerate, scrofulous ulceration also takes place, at times, and produces hoarseness, &c., and this ulceration affects the side corresponding to the diseased lung. It is well always to bear in mind the general fact, that consumption is not a lung disease merely. No doubt its local ravages are more obvious in the thorax, but it leaves in the abdomen its destructive agent. The stomach is often affected, there is infiltration of the hepatic tissue, other tissues are also affected. We shall briefly in detail consider the general symptoms of this distressing disease.

The general symptoms of phthisis are *cough*, *dyspnœa*, *expectoration*, *hemoptysis*, *emaciation*,  *hectic fever*, *hoarseness* or *loss of voice*, *diarrhœa*, and sundry other symptoms.

*Cough* is one of the earliest symptoms of consumption; it first attracts the attention of the patient, first awakens his fears. Slight, occasional, dry cough, usually comes on when the patient comes out of bed in the morning, if he makes any unusual exertion; it feels like irritation in the throat; it will cease in the summer months, or when the temperature is moderate; gradually it becomes troublesome at night, and is attended with more or less expectoration of mucus. But chronic cough may exist without any tubercular disease of the lungs, it may depend on a disordered state of the stomach—the pneumogastric nerve may be irritated *there*—it may be the cough of chronic catarrh, it may result from heart disease, it may be nervous. Bearing these facts in your memory, it would be prudent to inquire into any disordered state of the digestive organs, or catarrh or cardiac disease, or nervous affection. Cough, however, is an essential symptom of consumption, present more or less in all its different stages, and it is often that symptom which most distresses the patient.

*Expectoration* is another symptom, and a very valuable one. A portion of the matter expectorated comes from the surface of the bronchi, and consists of altered mucus; portions of tubercular matter are found in the expectoration—dull yellowish streaks, little curd-like fragments are involved in the mucus. The sputum, a most characteristic of tubercular disease, consists of globular, gray, flocculent masses which look like little portions of wool. When they are put into a glass of water, you will see some of them subside to the bottom, some float on the top, suspended apparently by healthier mucus, in which they are entangled, or by bubbles of air; and some remain stationary at different depths. When stirred and agitated in the water, they render it slightly milky. This kind of expectoration commonly marks a confirmed and advanced stage of the disease, it is not perfectly pathognomonic, but nearly so. I am satisfied that there is in expectoration that which indicates phthisis with absolute certainty, but that which we have described seldom occurs but in phthisis.

*Hemoptysis* is a kind of expectoration, the expectoration of blood. The general opinion of the profession is, that if a person spits blood who has received no injury of the chest, in whom the uterine functions are healthy, and who has no disease of the heart, the chances are that there are tubercles on the lungs, advanced tuberculosis, the

breaking down or hepatization of the lungs, pulmonary apoplexy, are all symptoms of consumption.

*Dyspnœa* is another important symptom of consumption. It is seldom extreme until toward the close of the disease, and not always then. Indeed it is a wonder that a disorder in which so large a portion of the breathing apparatus is involved, should be attended with so little distress in respiration. Pain of the chest is not a very important symptom. In some cases pain is complained of, a pain resembling that of rheumatism, more especially in the sides under the clavicle. If during the progress of phthisis, violent pain in the side and extreme difficulty of breathing, and anxiety, set in suddenly, they denote with much certainty, perforation of the pleura and its serious consequences.

*The hectic fever* which accompanies phthisis, is of great moment. It often creeps on the patient insidiously. He feels chilly, perhaps, towards evening, and in the night his hands and feet are dry and burning, and in the morning he perspires. The most marked symptoms of hectic are to be found in the perspiration and state of the pulse. The perspiration is sometimes moderate, sometimes the patient is drenched with it. The cause of this symptom is evidently the absorption of the tubercular matter, together with imperfect arterialized serous blood; generally speaking, it belongs to the most advanced stage of the disease, but occasionally it appears early. This symptom is often very distressing to the patient, making him even dread to go to sleep; it tends, also, to the rapid exhaustion of his strength, and foreshadows, when copious and persistent, a short duration of the disease.

*Frequency of pulse* is a symptom so generally present in consumption, that too much importance cannot be given it as a diagnostic sign—usually the pulse is over ninety, and often is much higher. When there is nothing to account for this frequency of pulse, it is to be regarded as a suspicious symptom.

*Diarrhœa* is a common symptom, and the worst one in phthisis. As a general rule, diarrhœa does not become urgent until the disease is far advanced—it is an unequivocal symptom, and harasses the patient exceedingly; it produces rapid waste, of vital force, strength, and flesh. The patient appears to melt away with the frequency of the evacuations, debilitating the system. This symptom chiefly depends upon a serofulous or ulcerated condition of the intestines. In the small intestines, the ulceration usually commences in the mucous follicles, and sometimes, though not often, the ulcer perforates the bowels. In the large intestine, ulceration begins in the same manner, by the deposit of tubercular matter, and when this process is once begun, it spreads to all the surrounding tissue; the mesenteric glands also become affected. Emaciation is another symptom, œdema of the feet, ankles, and some degree of puffiness of the hands and face, are circumstances which seldom fail to appear in pulmonary consumption, but they are usually among the later symptoms.

*Aphthæ* are also among the later symptoms. Ulceration of the larynx and trachea is sometimes a complication. There are a few

other circumstances which, when they occur, accumulate additional evidence as to the nature of the disorder.

The catamenia are suspended in women, and the hair falls off. There are certain physical peculiarities, too, which are strongly indicative of a tendency to consumption, or, perhaps it would be proper to say, the scrofulous diathesis. We may recapitulate before proceeding to our diagnosis.

*Tubercles* occupy the upper part of the lung by preference.

The *first sound* in auscultation, of this dreadful malady, is to be found over the clavicle, dullness, indistinct breathing, coarse inspiration, prolonged expiration, click or morbid noise of some sort when the patient expires. When we have a clear sound on percussion, we must not be too ready in pronouncing the case; for sometimes we may be deceived in auscultations. I very seldom use, in my practice, auscultation as a means of diagnosis. I am more partial to the symptoms just described, to the use of galvanism, where the symptoms are obscure. I invariably apply the battery to detect the tender spot, if there be one; to detect any breaking down, and, as a general thing, we will be able to decide; if tender, the patient will twitch, much the same if there is any breaking down.

DIAGNOSIS.—*First Period.*—*Scattered Miliary Tubercles.*—*Exterior of the Thorax.*—The only appreciable, though not constant change, is a want of freedom in the movements of the chest under one or both clavicles.

*Percussion*, if skilfully performed, will, in the majority of instances, discover a slight diminution of sound over some portion of the parietes, corresponding to the summit of the lung.

*Auscultation.*—The inspiration in the same locality is either rougher, weaker, or confused. The expiration is also comparatively more distinct. It is important to remember, that the modification of the latter are often appreciable before those of the inspiration. The voice and cough are more resonant, and wheezing or mucous ronchi are occasionally heard in the same region and not extending beyond it.

*Second Period.*—Tubercular deposit more abundant. *Exterior.*—The motion of the chest is more evidently diminished under the clavicles, on one or both sides.

*Percussion.*—The loss of sound is more distinct now, and the resistance to the finger greater. It is not modified by a deep inspiration.

*Auscultation.*—The inspiration is bronchial; the expiration is louder and more superficial; the resonance of the voice and cough is increased, and the cardiac sounds are more audible in the same point. The rest of the lung is healthy, or we discover puerile respiration.

*Period of Softening.*—In addition to the preceding signs, auscultation reveals a more or less abundant subcrepitus rouschus round the apex of the lung, and decreasing from above downwards. It is most distinct during or after the cough, and at the close of a deep inspiration. With the progress of the disease, the bubbles become successively larger, and ultimately gurgling. The inspiration and expiration, from being bronchial, are cavernous or tracheal. The voice and cough are progressively bronchophonic and pectoriloquous. The



intercostal spaces are often locally depressed, and the percussion may become gradually clearer, and even tympanitic, as the excavation advances.

REMARKS.—It is most important to remember that these different changes commence, with very few exceptions, in the summit of the lungs, and proceed from above downwards; that *one* lung is in general affected first, and the disease is seldom at any period equally advanced in both; consequently, comparative examination of the same lung, and of correspondent portions of the opposite side, should never be omitted. We should particularly examine the sub-clavicular regions, and supra-spinous fossa, where the signs are often more distinct than anteriorly. Bronchial ronchi, limited to the sub-clavicular regions, are often pathognomonic of tubercles. In some extreme cases, in addition to a tympanitic clearness of sound under the clavicles, we may have metallic tinkling and amphoric respiration. This condition is to be distinguished from pneumothorax, by determining the contact of the remainder of the lung with the parietes. The presence of emphysema in the upper lobes, obscures some of the physical signs; but an attentive examination, either before or behind, will generally detect the real nature of the case.

DIFFERENTIAL DIAGNOSIS.—*Dilated bronchi* and *tubercular cavities*. The former lesion is almost always limited to one lung; it generally occupies the scapular, mammary or lateral regions; it is chronic, and comparatively stationary in its progress; it never indicates a large excavation; the sound or percussion is seldom seriously impaired; and the rational symptoms of phthisis, as hæmoptysis, pains in the chest, striated expectoration, &c., are wanting. These indications, combined with the history of the case, and the actual condition of the patient, will perhaps always distinguish the two affections.

CHRONIC BRONCHITIS AND PHTHISIS.—In bronchitis, the ronchi and other symptoms decrease from below upwards; the percussion is natural, or nearly so, particularly under the clavicles, there is no bronchophony, pectoriloquy, or cavernous respiration; the inspiration, when audible, is vesicular; the expiration is protracted and wheezing. Examine also the character, duration and succession of the general symptoms.

PNEUMONIA AND PHTHISIS.—If pneumonia is limited to the lower lobes, or if we recognize it from the commencement, there can be no difficulty in the diagnosis; but if the hepatization already occupies the upper portion of the lung, we have no distinctive physical sign. The history and progress of the case, the effect of treatment, the character of the expectoration, and the general symptoms, will, in most cases, enable us to decide.

TUBERCULATED BRONCHIAL GLANDS.—In addition to the existence of similar tumors in the neck, percussion would sometimes give a dull sound upon the upper and central portion of the sternum; there would be intermittent dyspnœa with no appreciable lesion of the lungs.

GENERAL REMARKS.—Supposing we meet with a case of a young man, who has an obstinate cough, which began without any obvious cause—a cough at first dry, and subsequently attended for a time with



watery or mucilaginous-looking expectoration, who has wandering pains in the chest, and loses flesh, the case is, in all probability, consumption. If there be hæmoptysis, to the amount of a mouthful, our diagnosis becomes almost positive, provided your patient is free from aneurism and disease of the heart. If, in addition, there is slight dullness on percussion on the upper part of the lungs, with hard respiration, great tenderness on the application of the battery—the diagnosis of the first stage of phthisis, becomes next to absolutely certain, but not positively certain, for there might be encephaloid cancer in the lung. But if there be cough and permanent weakness, with hoarseness of the voice, the chances are that the patient is consumptive. If decidedly harsh respiration exists at the left apex, or the right apex behind, with dullness and tenderness ever so slight, there can be little doubt but that it is consumption. If there be slight flattening under one clavicle, with deficiency of expansive movement, harsh respiration, and slight dullness under percussion, without the local or general symptoms already described, the first stage of tuberculization cannot be diagnosed with certainty, unless there be incipient signs of the left apex also; the conditions in question limited to one side, might depend on chronic pneumonia, or on thick induration of matter in pleura. Pneumonia limited to the supra and infra-clavicular region on one side, and not extending backwards nor downwards is commonly but not always tuberculous. Pleurisy, with effusion, is in the majority of cases tuberculous. The character of the symptoms prior to the pleurisy will generally decide between the two. The existence of cancer in any other organ is unfavorable to the presence of tuberculous disease, but tubercle and cancer may exist in the same lung.

**PATHOLOGY AND GENERAL TREATMENT OF CONSUMPTION.**—Many scientific physicians have not failed to notice that consumption is often ushered in with a bad state of appetite, a furred or else a morbidly clean tongue, unusual acidity of the stomach and alimentary canal, anorexia, constipation alternated with diarrhœa, and a variety of symptoms usually attributed to dyspepsia, or referable to a deranged state of the primæ viæ. We cannot deny that in the great majority of cases these are some of the symptoms which accompany phthisis throughout its progress, becoming more and more violent towards its termination. Now as the nutritive properties of the blood are entirely dependent on a proper assimilation of food, and as this assimilation must be interfered with in the morbid condition of the alimentary canal, the continuance of such conditions necessarily induces an impoverishment of that fluid and imperfect growth of the tissues. Under these circumstances, if exudations occur, they do not exhibit any tendency to perfect cell formation, but that corpuscles are produced, which form slowly, and slowly break down, cause ulceration and softening, which becomes more and more extensive as the amount of exudation increases. An observation of the circumstances which precede the disease, or its so-called causes, clearly indicates imperfect digestion and assimilation, as its true origin. Thus consumption is essentially a disorder of childhood and youth, of that period of life

when nutrition is directed to building up the tissues of the body. Diminish the proper quantity of food taken by a healthy adult, and, generally speaking, tubercular disease is not induced; but if this be attempted with children or young persons, it is generally the result. It has been supposed that hereditary disposition, a vitiated atmosphere, changeable temperature, certain unhealthy occupations, humidity, particular localities, absence of light, and so on, tend to produce phthisis. Very frequently these are found united, so that it is difficult to ascertain the influence of each. When they so operate, they invariably produce, in the first place, more or less derangement of the nutritive functions.

From a correct study of the symptoms, causes, morbid anatomy, &c., of phthisis, we are led to the following conclusions that it is a disease of primary nutrition; causing

1. Impoverishment of the blood.

2. Local exudations into the lung, presenting the characteristics of tubercular exudation.

3. Owing to the successive formation and softening of these, and the ulcerations which follow in the pulmonary and other tissue, show the destructive results which distinguish the disease. Farther observation shows us, that circumstances which remove the mal-assimilation, frequently check farther tubercular exudations, while those which previously existed become abortive, and that occasionally very extensive excavations in the pulmonary tissue may, owing to the like circumstances, heal up and cicatrize.

For the successful curative treatment of this disease, we would suggest to your careful consideration, the following leading indications.

To restore the healthy nutrition of the economy.

To subdue local irritation.

The avoidance of those circumstances which are likely to deteriorate or impair the constitution on the one hand, or induce pulmonary symptoms on the other.

- 1st. A healthy nutrition of the body cannot proceed without a proper admixture of mineral, albuminous, and oleaginous elements.

This may be inferred from the physiological experiments, from an observation of the constituents of milk, the natural food of mammiferous animals; from a knowledge of the constituents of the egg, which constitutes the source from which the tissues of oviparous animals are formed before the shell is broken, and from all we know of the principles contained in the food of the adult animals.

The researches of the most eminent chemists point to the same generalizations, when they assert that carbonized and nitrogenized, or as they have been called, respiratory, and sanguineous food, are necessary to carry on nutrition, inasmuch as oil is a type of the one, and albumen of the other. You are well aware that the successive changes, which occur for the purpose of assimilation in the healthy economy are as follows:

Introduction into the stomach and alimentary canal of food—organic matter—its transformation by the process of digestion into the albuminous and oily compounds; this process is *chemical*. The absorption

of these compounds through the mucous membrane in a fluid state, and their union in the termination of the villi and lacteals, to form elementary granules and nuclei, this process is *physical*; the transformation of these first into chyle corpuscles, and latterly into those of blood, this is a *vital* process. It is from this fluid, still farther elaborated in different ways, that the nutritive materials of the tissue are derived, so that it is evident that if the first steps are imperfectly formed or performed, all subsequent ones will be interfered with. No one can doubt that the oil and albumen derived from the food, and so altered chemically and mechanically in the body, constitute the material from which blood is formed—its elaboration is necessary to supply and keep up the vital properties of the blood. The peculiarity of phthisis is, that an excess of acidity exists in the alimentary canal, whereby the albuminous constituents of the food, are rendered easily soluble, while the alkaline secretions of the saliva and pancreatic juice are more than neutralized and rendered incapable, either of transforming the carbonaceous constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system, as will render them easily assimilable. Hence an increased amount of albumen enters the blood, and has been found to exist there by chemical analysis, while fat is largely supplied by the absorption of the adipose tissues of the body, causing the emaciation which characterizes the disease. In the meanwhile the lungs become especially liable to local congestions, leading to exudations of an albuminous kind—which is tubercle, this in its turn being deficient in the necessary proportion of fatty matter. Thus a local cause is added to the constitutional disorder, and that compound affection is induced, which is termed phthisis pulmonalis.

To improve the faulty nutrition, which originates and keeps up the disease, it is of all things essential, of the greatest importance to cause a large quantity of fatty matter to be assimilated. A mere increase in this amount, or even quality of the food, will often accomplish all—a kind of food, rich in fat, will be beneficial, and produce the desired result, and hence I attribute the greatest value to *cream*. Cream is my favorite remedy, or beef with a good proportion of fat, butter, glycerine. But in order that such substances should be digested and taken up or assimilated, the powers of the stomach and alimentary canal must be maintained. In most cases it will be found that the patient is unable to tolerate fatty food, and that it either lies indigestible in the stomach, or is sooner or later vomited. Under these circumstances, the animal oils are indicated, by giving which we save the digestive organs, we save the trouble of manufacturing or separating them from the food. By giving considerable quantities of oleaginous substances, a large proportion is at once assimilated, and rendered capable of entering into combination with the albumen, and thereby manufacturing or elaborating the formation of healthy chyle. Such appears to be the rational of the effects of cod-liver oil, cream, glycerine. There is no doubt that such substances are indicated in all such cases of abnormal nutrition, dependent on a want of assimilation, of fatty matter; they operate by combining with the excess of

albuminous constituents of the chyme, and aid in forming these elementary molecules, of which the chyle is composed. Their effects in phthisis are to nourish the body, which usually increases in vigor and bulk; checks fresh exudation of tubercular matter, diminishes the cough, expectoration and perspiration.

The second indication, viz: to subdue local irritation is only to be followed out in acute cases, by treatment analogous to a case of pneumonia. The exhibition of gelsemin, lupulin, hyoseiamin, the local application of the irritating plaster, tar plaster, pitch plaster, may all be used according to circumstances. Cold sponging with salt water or cold, employed with precaution, so as not to produce a chill, but rather a glow afterwards, is always beneficial, or you could bathe with alcohol, or rub in first white of egg, then bathe, muriatic acids baths. Such are some of the means in our power to meet this indication, combined with local treatment, bear always in mind to invigorate the general system, by cream, white of eggs raw, with salt sufficient; breakfast of mutton chops, dinner of beef steaks, rare, with vegetables, farina, rice, milk, oysters, and a little stimulus of some alcoholic beverage, pure air, invigorate to the utmost.

The third is the most difficult indication to carry out. In order to aid this indication, the patient must avoid those circumstances likely to deteriorate the constitution, or induce pulmonary symptoms. One of the greatest difficulties we have to overcome in this country, is climate, the frequent variation of temperature, the sudden changes from heat to cold. But supposing you attend rigidly to the means of supporting nutrition and keeping down local irritation, then your next essential is to secure good hygienic condition, essential cleanliness; a superabundance of pure fresh air; and a sufficiency of exercise in that air daily, to keep all the functions, more especially the breathing apparatus and stomach in the most perfect condition. We must not only stimulate the appetite and give good things to eat, but we must attend to other matters. Food in proper quantity and quality, proper digestion, healthy formation of blood, a certain exchange between the blood and external air, between the blood and the tissues—proper excretion should also be attended to, all these processes are essential for nutrition, and are essentially connected with each other, hence we cannot too strongly impress or inculcate the necessity of the best hygienic measures—and the greatest attention to *climate, exercise and diet*. Much has been written on climate, but the one that appears to be best to us, is one that will enable the patient to pass a few hours in the pure air without exposure to cold or vicissitudes of temperature on the one hand, or excessive heat on the other. With regard to diet, speaking on general terms, let it be nutritious, while everything that induces acidity should be avoided. Ever bear in mind that the strongest stimulant to health is exercise, hence the importance of any and everything which aids proper digestion and good assimilation. Some precautions are necessary, combined with proper bodily and mental exercise, avoiding exhausting and too fatiguing occupations—everything that can invigorate should be adopted, and everything that can exhaust or depress, should be shunned. As a vitiation of the



chyle and blood precedes the local deposition of tubercular exudation, it necessarily follows that the numerous class of patients whose chief complaint is derangement of the digestive process, with languor and debility, may, by proper hygienic means, proper diet, and a thorough course of alteratives, be restored to health.

If it were possible for the proper indications of treatment to be carried thoroughly and rigidly out, the nature of this terrible complaint would not be so formidable, but among a certain class, we have to contend against the impossibility of procuring proper food, and the thousand imprudences which invalids of this class are continually committing.

Every case of consumption that comes under our observation, requires a special treatment, which will depend upon the severity of this and that symptom, or the existence of peculiar symptoms. It is the undue importance given to this special treatment, apart from general treatment, that much of the want of success is experienced by the profession. There can be no doubt that the treatment of symptoms, with a view to palliation, often fails to relieve the functional derangement to which they are directed. Still these symptoms require attention, and we may more appropriately speak of each of them in detail.

*Cough and Expectoration.*—In the first stage the cough is dry and hacking, when tubercles soften, it becomes more moist and of longer duration—when excavations exist, it is hollow, reverberating. In all cases, cough is a spasmodic action, occasioned by exciting the branches of the pneumogastric nerve, producing reflex movements in the bronchial tubes and muscles of the chest. The expectoration following incipient dry cough, is at first scanty and muco-purulent, but afterwards copious and purulent. When it assumes a viscid, round mass, it is generally brought up from the pulmonary excavation. The accumulation of matter in the bronchial tubes is an excitator of cough, hence this symptom is best controlled by the exhibition of those remedies which tend to diminish the amount of sputum. If the cough is dry, the remedies should be used which decrease the sensibility of the nerves. In the first case, the amount of pus and mucus formed will depend materially on the weakness of the body and progress of the tubercle. In such cases a combination of *gelsemin* and *cerasin* will usually meet the indication, together with good nourishment, cream, white of eggs, oysters, essence of beef, &c., and attention to the digestive functions, are the best means of checking cough and expectoration. If any degree of bronchial inflammation be present, the bronchitis drops are indicated. Or equal parts of tinctures of aconite, belladonna, chamomile, sanguinaria, hyosciamus.—*M.*; four or five in a little water as indicated. In allaying cough in irritable subjects, tinct. aconite, gelsemin and hyosciamus, equal parts, will be found to answer well.

When the urgency of the cough has more relation to the character of the expectoration than to nervous debility, a solution of the chlorate of potash may be resorted to with advantage. For the purpose of allaying the cough, and aiding in diminishing the expectoration,

various remedies are used by different practitioners. *Chloride of sodium* is highly esteemed by some physicians; a drachm a day in some pectorial infusion. *Bromine* is a valuable remedy if the case is acute; it may be alternated with small doses of cinchona, which has the power of arresting the destructive metamorphosis of tissues. Prussiate of potash is an excellent remedy, in cases of physical catarrh. *Syr. iodide of iron* and *manganese* has also been attended with the most happy results. *Syr. of phosphates*, of soda, iron and lime, also the hypophosphates. These remedies are given upon the principle recommended by Dr. Churchill, viz: a decrease in the system of phosphorus, in tuberculosis, so that by giving such a remedy as the hypophosphate of soda or lime, the symptoms sometimes improve. Lobelia and sanguinaria are of great utility. *Anodynes*, such as conium and hyosciamin. Indian hemp is occasionally useful. *Inhalation* is often of the utmost benefit; such as an inhalation of iodine, of tar and conium, of creosote, chloroform. *Counter-irritation* is extremely useful all through the case; it frequently relieves the most stubborn cough. But above all remedial agents, stands nutrition. Nothing is more remarkable than the cessation of the cough spontaneously, as also the expectoration on the improvement of the digestive functions.

*Loss of appetite* is sometimes an important symptom of phthisis, because it interferes more than any other with the nutritive process. If food cannot be taken and digested, it is in vain to hope for amelioration in any of the essential symptoms. We must not be satisfied with the statement of patients in these cases, as they are usually delusive; all derangement of the digestive organs and appetite must be looked after. Alcoholic stimulus in the form of brandy, should be given before each meal—and persevered with. If this does not succeed well, the precipitated carbonate ferri might be tried. Frequently there will be acid and other unpleasant tastes in the mouth. In such cases, our remedial agents might be dispensed with for a few days, and some stimulating tonic given, as the restorative wine bitters. Usually some of the symptoms will be observed to be ameliorated, and the healthy tone of the stomach restored. Other vegetable tonics, as bark, gentian, hydrastis, &c.

*Nausea and vomiting* is another complication, a feeling of nausea on taking food, but in the latter stages of the affection, vomiting is occasioned by the violence of the cough, and the propagation of reflex actions, by means of the parvagus to the stomach. The sickness must be alleviated if possible, and give the stomach repose; a suspension of medication for a few days will be often attended with happy results. Epec in very minute doses, with some stimulating application over the region of the stomach, will answer well.

DIARRHŒA.—This is in some cases a very troublesome symptom; usually it depends on an excess of acidity in the alimentary canal, but in more advanced cases there may be tubercular deposit or ulceration of the intestines. The best method of controlling this troublesome symptom, is by improving the quantity and quality of the food. Renovate and give tone to the digestive functions, rectify all derange-

ments of the alimentary canal, and this will disappear. Hence, we would inculcate the avoidance of astringents, and preparations of opium, and a dependence upon the milder remedies, such as the neutralizing cordial, its antacid properties rendering it very valuable in this affection. But if the diarrhœa occurs in an advanced stage of phthisis, and is persistent, it may be presumed that tubercular disease of the intestine is present, and the strongest astringents with morphia may be given.

**HEMOPTYSIS.**—This symptom sometimes occurs suddenly; sometimes appearing in persons in whom no physical signs of the disease can be detected. On other occasions the expectoration may be more or less tinged with blood, and it may occur in the advanced stage of the disease, from ulceration of some vessel. In all these cases the best remedy is perfect quietude, and avoidance of every kind of excitement, bodily and mental. Astringents are highly esteemed by the allopathic profession, but I am very sceptical as to their value. I am very partial to the use of *lycopin*, preferring full doses of it above all remedies in hemoptysis. *Erigeron* is excellent, so is gelsemin, Mon-sul's per-sulphate ferri, gallic acid, &c., &c., are all good.

*Perspiration*, or night sweats, we regard as a symptom of weakness, not a special one in phthisis, and here again, the truly curative treatment should consist in renovating the nutritive processes, giving tone and strength to the system—tone and stimulate, give the best of diet—a diet such as we have indicated, and we will find not only the perspiration, but the cough and expectoration will cease. The practice of giving acid drops, such as dil. sulph acid, to relieve the symptom, we regard as irrational, as we thereby add to the already acid state of the alimentary canal, which is in direct opposition to the digestion of the fatty principles which require assimilation.

**FEBRILE SYMPTOMS.**—The quick pulse, general excitement, loss of appetite and thirst, which are so common in the progress of consumptive cases, are dependent pretty much on the same causes, as those which induce symptomatic fever in general vascular distension, exudation and its absorption, proceed with greater or less intensity in the lungs as in other organs. This leads to nervous irritation, increase of fibrin in the blood, accompanied with febrile phenomena. The intensity of these is always in proportion to the activity of the local disease, or to the amount of secondary absorption going on from the tissues, or from morbid deposits. Indeed, nothing is more common than attacks of so-called local inflammation in phthisis, and the careful physician may often determine by physical, as well as other signs. The super-vention of pleurisy, pneumonia on the previously observed lesion, and not unfrequently laryngitis, enteritis or other disorders. In such cases, nature points, nay dictates, that the stimulating, nourishing treatment, otherwise, appropriate is no longer applicable; food disgusts, fluids are demanded. Under these circumstances, we must use with caution such remedies as aconite, veratrum, gelsemin; bear well in mind that every attack of febrile excitement is followed by a corresponding collapse, and this disease being essentially one of weakness, (true adynamia) the patient's strength should be husbanded to the greatest

possible extent. Hence, as a rule, the treatment I earnestly call your attention to, would be one of the most simple, but beneficial. Small doses of the neutralizing cordial, combined with the eupatorin, queen of the meadow, or any other diuretic, in order to favor elimination by the urine. Alkaline sponging all through the case, give the *cerasin*; it is certainly unequalled in this complication. Subsequently the pyrophosphate of iron and populin, are undoubtedly advantageous. Counter-irritation is valuable—dry cups—irritating plaster. In cases where the febrile symptoms are more rapid, the treatment, of course, must be more active.

DEBILITY.—This is a common symptom of phthisis from the start, and frequently leads the patient into indolence of mind and body; a condition very unfavorable for the nutritive functions upon the successful accomplishments of which its removal depends. It is to remove this debility, that we administer tonics, quinine, cornin, populin, or bitter infusions, or chalybeates, or hypophosphates; but all these remedies must be given in a pleasing form—palatable to the taste; the continuous use of nauseous medicine often disgusts the patient, and interferes with the function of the stomach. Here again you have the most pressing indication to remove the dyspeptic symptoms, stimulate the stomach, give your cream, white of egg, beef tea, essence of beef, soups, &c., &c., and improve the appetite by gentle exercise in the open air if possible; change of scene, cheerful, mental occupations. If you thus succeed in renovating, improving the process of nutrition and assimilation, it is often surprising how the strength increases. This is a sufficient indication of what should be your method of removing debility. On such a course of treatment, patients who cannot sit up in bed without assistance, become so strengthened that they are often able to walk about without fatigue, and this, after you may have exhausted all the vegetable, mineral and acid tonics, of the *materia medica*.

DESPONDENCY AND ANXIETY.—It is impossible for the eclectic profession to avoid observing the influence of depressing mental emotions on the progress of phthisis. The worst cases are those of persons with mild temperaments, who yield to the influences of feelings of languor and debility, which oppresses them. Such are usually the best patients, anything will do for them, but I do not like such cases, they are, generally inauspicious ones, frequently it is difficult to inspire them with energy sufficient to carry any of the requisites for securing health, as taking exercise, absolutely essentially necessary to renovate the appetite and improve the digestive functions. Some patients are benefitted by slow travelling, cheerful society, agreeable associations, everything that can elevate the spirits and communicate a stimulant to the mental and bodily powers. Anxiety, though it may be depressing, and may interfere with the digestive organs, is often of some value, making them more careful of their health, and knowing or picturing out a line of treatment; they will pursue it with energy. These as a general rule, will be your best cases, and you will be likely to effect a cure or retard the malady. Others again, being strong-minded, and becoming acquainted with the nature of the disease, exhibit a noble resolution,



exalted fortitude, and bravely struggle against local pain, general debility and nervous fear, and overcome the malady.

GENERAL OBSERVATIONS.—The general indications in the treatment of all cases, is to prevent the further development or deposit of tubercle, and their deposition in the lungs. So as to fulfill this, the blood must be changed to a healthy state; tone and vigor must be imparted to the system; and you must not regard the disease as incurable, for cases often get well without any medical treatment. It is utterly impossible for us to lay down any specific course of treatment. You must be guided by the condition and age of the patient, and stage of the disease. Bear in mind that if you do not cure, you at least give relief. As prophylactic treatment, you must inculcate exercise in the open air, full and free diet, vegetable tonics, in combination with the chalybeates. You must attend to all the secretions and excretions; you must protect the whole region of the chest and body with flannel. Two layers of flannel, with salt between, should be worn constantly all over the lungs; the chest should be bathed repeatedly,—daily, if you please, with salt and water, with a small proportion of iodine in it, or with alcohol; a tar or pitch plaster must be applied; the chest might also be rubbed with some oleaginous substance. All the deficiencies of the blood must be attended to with the best of diet. At the same time iron, in combination with the phosphates, must be given; if you have regular remittent febrile indications, you must give anti-periodics and anodynes. All symptoms, as they arise, must be controlled; bronchial irritation must be allayed with gelsemin. The chest must always be protected. In most all cases you will find a deficiency of hair over the chest. This is almost an invariable symptom of tuberculosis. You must control the diarrhoea; in some cases it is extremely debilitating, exhausting to the patient; it must be checked by gelsemin, geranin, rhusin, or by opium and tannin. Sub-nitrate of bismuth is excellent. Always keep up the circulation by an alcoholic stimulant, such as brandy, white of egg in milk or cream; brandy in milk, you will find a good remedy. For procuring rest, and aiding your other treatment, you have the hyosciamin, gelsemin. Galvanism is of undoubted utility in the prophylactic treatment. Where you meet with this affection in females, keep the catamenia regular by all means. This is the key of treatment in all such cases. Keep an opposite function active, and you are sure to retard the progress of the disease. Suppose a female becomes pregnant, as a general thing the disease will be kept under, and the energies of the system be directed to the process of fecundation. You must always bear in mind that consumptive patients, and all persons suffering from pulmonary diseases, are sensitive to cold. The impeded transpiration from the lungs in such cases, is equalized by the increased action of the skin, which becomes unusually liable to the influence of diminished temperature. Again, cold applied to the surface, immediately produces, by reflex action, spasmodic cough and excitation of the lungs. Sometimes, the mere exposure to air on a cold day of the face, takes away the breath, induces cough, and obliges the patient to muffle up his mouth. Under all circumstances, the patient should be

placed under the most favorable condition, and the best attention should be given to all minutiae.

*Cod-liver oil* is usually indicated, acts beneficially, but it is probable that the iodine it contains is the real curative agent; the oil, composed principally of carbon and hydrogen, may serve the purpose of neutralizing a portion of the inspired oxygen. It is a remedy that should have a fair trial.

*Iron* is a remedy which is specially valuable; the phosphate is undoubtedly the best form—indicated in anæmic, dyspeptic or chlorotic cases.

*Lobelia* has been quite extensively used. Its special sphere of action is sedative to the pneumogastric nerve. It certainly affects all the organs supplied by this nerve. It acts promptly, energetically.

*Sanguinaria* is one of our best agents; its best results are to be obtained in small doses.

*Phosphorus*, in all forms of phthisis is indicated; it is a necessary constituent of all healthy nerve tissue, and in all conditions of low nervous disease, is very valuable. It is no specific for phthisis, but acts usefully, energetically, where we have a depressed nervous energy.

*Drosera* is well adapted for all forms of the cough, oppression, difficulty of breathing, night-sweats, emaciation.

*Lycopodium* acts best in tubercular consumption, following hemoptysis, neglected catarrh, pneumonia, purulent expectoration.

*Cereasin* is well adapted to constant, spasmodic, violent cough, accompanied by violent retching; expectoration, copious, mucous and purulent.

*Cinchona* arrests the destructive metamorphosis of tissues, and is highly valuable in phthisis.

*Brandy*, in large or small doses, in phthisis, is not capable of affording relief. Its influence, generally speaking, is not only useless, but injurious to the consumptive. It arrests and obstructs the vigor of vital action; by it growth is checked; under its use renewal of tissue goes on slower. If given at all, it should be in small doses in milk.

In recommending brandy, or any alcoholic beverage, we must never forget its action on the liver. In all cases of consumption the liver is torpid; the blood flows rapidly to it, but the organ is obstructed, congested, and if brandy, in any form, is given, it aggravates the mischief.

It has been estimated that hemoptysis occurs in two-thirds of all cases of phthisis. We have relied on gallic acid, iron, hamamelin, aconite, digitalis, mellefolium, tannate of quinine, epec.

**ACUTE PHTHISIS.**—Consumption is usually a chronic affection, lasting months or years, but we frequently meet cases that rapidly pass through all its stages to a fatal termination. In these cases there is a strong tubercular disposition, or else a latent tubercular deposit existing, which is not perhaps suspected, until hemoptysis attacks the sufferer, when the disease pursues its destructive progress with lightning speed.

**DIAGNOSIS.**—Acute phthisis will be distinguished from *pneumonia* by the physical signs, solidification of the whole lung, commonly

beginning with the lower lobe, or traveling from lobe to lobe; whereas in acute phthisis, the disease is developed simultaneously in the upper portion of both lungs—the upper portion of both lungs being most affected.

TREATMENT.—Our main reliance must be placed upon the remedies already enumerated: *aconite*, *phosphorus*, *iodide potassium*, in *C. syr. stillingia*, *lobelia*, *sanguinaria*, *carbonate ammonia*, *digitalis*, *chlorate potassium*, &c.

BRONCHIAL PHTHISIS.—It is only where the bronchial glands are the seat of tuberculous deposit, when tubercles are not present in the lungs, that the disease gets the name of *bronchial phthisis*. It is a disease peculiar to childhood, and if not correctly diagnosed, or treated, may run into true pulmonary phthisis.

Bronchial phthisis is common after bronchitis.

The remedies here most successful are: *phosphorus*, *iodine*, *sanguinaria*, *bi-carbonate*, and *chlorate of potassia*, *senega*, *drosera*, *belladonna*, *lobelia*.

*Prussiate* and *permanganate of potash* are highly esteemed, and strongly recommended where the cough is great, and the expectoration profuse.

## BRONCHOCELE.

This disease is characterized by an hypertrophy of the thyroid gland. It is a true hypertrophy, divided into three principal forms, according as the *vascular*, *glandular* or *connective* tissues are involved. The gland is abundantly supplied with blood-vessels distributed in lax, cellular tissue; and it is the organ next to the spleen, most liable to changes of size from congestion. The effects of congestion simply engorge the gland with blood—sudden turgescence of the gland often originates from suppressed menstruation and masturbation, and apt to become enlarged in amenorrhœa.

Excessive turgescence of the gland may cause a rupture of a vessel and effusion of blood. The coagulation undergoes the same changes as in other apoplexies, and may lay the foundation of cystic goitre. Its vessels may become atrophied, it may become hard and small, and a calcareous deposit may be found in the tissue. True hypertrophy of the thyroid gland, properly speaking, consists in an abnormal development of the glandular capsules, distended by a gelatinous fluid. Capsules containing within themselves one or more cells, each capable of reproduction.

The thyroid gland is often changed into fibrous tissue. It may undergo the fatty, osseous or cartilaginous transformation.

Other cases are met with as a cellular, emphysematous, cystic, hydatid, tubercle, encephaloid, scirrhus and colloid degeneration.

CAUSES.—Bronchocele is an endemic disease, being remarkably prevalent in certain localities; but the precise physical or chemical peculiarities have not been well ascertained. It is not confined to elevations nor to valleys, neither to hot or cold climates. It is found in all countries, and its origin has been ascribed usually to the water

used in sections where it prevails. Where the inhabitants drink snow water it is usually prolific; but it would seem to be most prevalent where the water is impregnated with calcareous matter. Indeed, all authorities are agreed that the disease is extremely prevalent where the water is from a limestone base, as carbonate of lime, magnesian limestone.

In what way this acts upon the blood to produce this peculiar enlargement, we are ignorant.

It is most commonly met with in females.

**SYMPTOMS.**—A soft, projecting, elastic tumor occupies the front of the neck, rarely tender, skin not discolored. Very often one lateral lobe is larger than the other. If of moderate bulk, it rarely causes any inconvenience, except headache or difficulty of breathing in a stooping posture; but if large, it may produce dangerous difficulty of swallowing, breathing, congestion in the head by pressure on the trachea, œsophagus and jugular veins, or it may induce thickening or disease of the trachea, with most obstinate cough, which may terminate in consumption.

**DIAGNOSIS.**—It will be distinguished from encysted and other tumors, by its shape, want of fluctuation, and in most cases by its affecting both sides.

The prognosis is mostly favorable.

**TREATMENT.**—No doubt can be entertained of the radical cure of this disease by the use of appropriate remedies. The principal remedies are the various preparations of iodine, as the iodide and bromide of potassium and stillingia, irisin, gold, phytolæin, iodide of sodium and ammonium.

*Iodine.*—The power of iodine on the glandular system, in causing absorption of the products of exudation are well known. It is not so successful in the cellular as in other parts. The best form for use is the iodide of potass in the C. syr. stillingia, or in a decoction of blue flag or phytolacca.

*Gold.*—This remedy acts promptly in all forms of the affection, alone or alternated with the bromide of potass.

Small doses of lobelia, podophyllin, irisin, ampelopsin, have been successful in treatment.

Ipecac has also been used with success. I have found

R̄.—Syr. stillingia, C. Oss;  
Iodide of potass, ℥ss.—*M.*

Dose: a teaspoonful to a tablespoonful twice daily, with the application of iodide of potass to the tumor, a mode of treatment that never fails; in addition, rock salt quilted between the layers of flannel, wet with a strong solution of iodide of potass, and applied to the throat every night before retiring.

Enforce the treatment recommended for scrofula, and if possible, remove all exciting causes.



## CRETINISM.

Cretinism is met with generally among the inhabitants of the valleys of the Alps, where the atmosphere is extremely humid, in consequence of numerous rivulets and waterfalls that emit powerful exhalations through the influence of the heat of the sun, while they are secluded from the access of every drying wind. It is a disease which has been supposed to be only a high degree of rachitis. This opinion is corroborated by an observation that the different stages or degrees of the evil correspond with the variations in the atmosphere. Those who inhabit the deepest and most secluded valleys, for example, are reduced to the lowest state of imbecility and idiotism; in those who are somewhat more elevated, the mental powers are not so completely obliterated; and others still more elevated, and of course less exposed to exhalations, will probably be deformed merely with wens or swellings about the joints, and other symptoms of rachitis. Those who are nearer to the summits are perfectly exempt from these appearances.

Cretinism is in many instances connected with bronchocele or goitre. An enlargement of the thyroid gland is indeed a striking feature in the unsightly aspect of the cretin, but it is not its constant attendant, for cretinism is frequently observed without any affection of the thyroid gland, and this gland is often much enlarged without any affection of the intellectual qualities. The production of cretinism by the bad quality of the air and food, the neglect of moral education, and other evils attendant upon poverty and indigence, is supported by facts so strong and pointed, that the greater number of cases in mountainous districts, may be safely ascribed to these causes, instead of to the use of snow-water, as a few have supposed. That a use of snow-water produces either goitre or cretinism, is an absurd idea, for persons born and living in places contiguous to the glaciers, who drink no other water than that which flows from the melting ice and snow, are not affected with these disorders, and they are observed and prevalent, frequently in places where snow is unknown. The water in regions where cretinism prevails, contains calcareous and other mineral substances, in solution, and renders it most unquestionably a drug disease.

TREATMENT.—Nothing can be done until the patient can be removed from the influence of local causes, which have originated the disease. The very successful results which have attended the treatment of cretins, have attracted the attention of philanthropic minds. Besides the physical training, put the patient under treatment recommended for serofula and bronchocele; for it is by changing, fortifying and toning the physical and nervous systems, developing little by little, until the standard of health is attained.

## RHEUMATISM AND GOUT.

The present theory with regard to those affections is, that they are both connected with an increase of lithic acid in the blood. In *rheumatism* this is dependent on excess of the secondary, and in *gout*

on excess of the primary digestion. In rheumatism, however, there is considerable excretion of lactic acid by the skin, whilst in gout there is an excess of soda, which, uniting with the lithic acid, produces a compound of lithate of soda, that may be detected as such in the blood, while sometimes it exudes into the cellular tissue of the skin, constituting tophaceous deposits. In both diseases there is an undue balance between the excess of lithic acid and the power of excretion—in rheumatism by the skin, in gout by the kidney. This pathology is supposed to be the true one, and it serves to explain the similitudes and differences existing between the two affections.

In both diseases there is a certain constitutional condition, dependent on deranged digestion, during which the existing causes occasion local effects. These exciting causes in rheumatism are bad diet, hard work, exposure to cold and wet, and its subjects generally are the poor laboring population. In gout the causes are good diet, indolence, excess, indigestion, and its subjects are for the most part the rich and over-fed. The local manifestations in both are acute wandering pains, with pain and swelling in rheumatism of the large joints, and in gout of the small ones, constituting the acute attack of both. These are combined with a tendency to various complications of the internal viscera, which are more or less dangerous to life.

**SYMPTOMS OF ACUTE RHEUMATISM** first manifest themselves in the form of slight chills, lassitude and general uneasiness, which are quickly succeeded by swelling, pain, redness, and augmented heat. The pain varies in character, being sometimes aching or gnawing, at others lancinating, darting, dull, throbbing or numb, pungent and pricking, and aggravated by movement, by exposure to cold air, by pressure to the touch.

At first rheumatism seizes upon the fibrous textures, but as the inflammatory action becomes developed, other tissues become involved. The larger joints are more subject to rheumatic inflammation than any other part. The other symptoms are bitter taste in the mouth, coated tongue, rapid and full pulse, hot skin, scanty urine, high colored and sedimentous, intense pain on moving the affected part; anxious, distressed expression of countenance, and occasional perspiration.

Rheumatism consists of a specific inflammation of a constitutional character, varying in its manifestations according to the part it happens to locate in.

It is extremely liable to shift from joint to joint, and fix upon some internal organ, as the brain or its membranes, the pulmonary structures, the heart and its appendages. There is usually little danger when it is confined to the joints. It is termed muscular rheumatism, when seated in the muscular structures; articular when in the joints; neuralgic when seated in the nerves or their investing membranes. It may also be acute or chronic.

**SYMPTOMS OF GOUT** are various, but it is always preceded by gastric or intestinal derangement, as impaired appetite, furred tongue, acid or flatulent distension of the stomach and intestines. The inflammation usually attacks the smaller joints, and as the disease advances, the veins in the vicinity of the pain become distended; the integuments swollen,

œdematous, are of a bright scarlet color; the pains are intense, darting, throbbing, persistent aching and burning character, increased by contact or movement; there is an almost loss of muscular power of the affected parts; pains are worse at night and accompanied by febrile symptoms; all the functions are sympathetically deranged; the urine is scanty, high colored, loaded with lithates; the patient restless, irritable, sensitive. The disease speedily arrives at its height, its maximum of intensity in two or three days. During this period, the great toe, and sometimes the foot itself, becomes œdematous, numbness and pricking are experienced in the swollen textures, especially during the day; the pains, evening exacerbations subside, when about from seven to ten days, the active inflammatory symptoms have disappeared and left the patient with a debilitated and œdematous limb. The perpetual recurrence of gout impairs the constitution, causes permanent thickening of the articular membranes, or cretaceous deposits about the joints, and induce that condition of the parts which leads to chronic gout, which is characterized by dull, burning pain, thickening, rigidity, weakness, partial loss of power; more or less gastric derangement, increased sensibility of mind and body to external impressions, depression of spirits, restlessness, and irritability.

The general indications of treatment are so to regulate the diet—the nutritive functions, so as to insure a due balance between the amount of matter entering the blood, as the result of digestion, primary or secondary, and the amount of matter discharged from the economy by the excretory organs; and to conduct an acute attack of either, to a favorable termination, carefully watching the internal viscera, and being prepared to act with vigor where active treatment is indicated.

TREATMENT OF RHEUMATISM.—This resolves itself into curative and preventive—the one must be carried out by remedies that act on the blood and excretory organs; the other by diet, exercise, hygiene.

Although the general pathology of rheumatism clearly points to the presence of lactic acid in the blood, generated during imperfect digestion, we are still unable to explain the whole train of symptoms, and our treatment of acute rheumatism is quite empirical. From among the various modes of treatment the following I esteem the best—a thorough alkaline treatment. If called in the early stage of an acute attack give an emetic of the C. powder of lobelia, followed with alkaline drink. After the action of the emetic, put the patient upon the following:

R<sub>y</sub>.—C. tincture aconite;  
           C. tincture veratrum;  
           C. tincture asclepias, āā ʒi;  
           Water, ʒiii.—M.

And give in teaspoonful doses every half hour, until there is free diaphoresis, and a quiescent state of the pulse. In alternation with this give large doses of alkalies, either the acetate, citrate, or nitrate of potassa. These remedies are much aided by either the alcoholic vapor bath, or a strong alkaline bath, or if the patient is unable to get up, sponging frequently with a strong alkali. In this way we

attempt to combat the pathological condition of the blood, and then act freely on the secretions with the podophyllin pill. The affected part should also be packed with an alkaline solution. If the above mode of treatment does not act promptly, the following will be found advantageous.

R<sub>y</sub>.—Asclepin,  
Eupatorin, āā ʒi;  
Hyosciamin, gr. i;  
Nitrate potassa, ʒii.—*M*.

Make twelve chart, one every two or three hours.

This might be alternated with asclepias and macrotys, and given till the patient experiences a slight pain or heaviness in the head. The diaphoretic powder should be given at bed-time to procure sleep. The use of alkaline remedies, internally, locally as packs, baths, such diuretic alkalies as those efficient ones, the citrate, or acetate of potash, given as above or with colchicum, sufficient to neutralize the lactic acid to eliminate the urea, and thereby protect the heart and internal viscera. As to the propriety or impropriety of giving opium, experience is against its use, it checks the biliary and other secretions, and thus prevents the elimination of the rheumatic poison, so that, when anodynes are indicated, as they always are in acute rheumatism, let them be such as, the diaphoretic powder and hyosciamin, which proves of the greatest service by exciting the perspiration, and allaying the irritability of the system. The use of alkalies should be continued perseveringly on with until the urine is rendered permanently neutral.

The constant system of purgation resorted to by some is not really beneficial, it may remove a large quantity of an unhealthy secretion, but they necessarily exhaust the strength and impede the recovery.

Some cases yield readily to simple treatment, as a simple solution of carbonate of potassa internally, its local application to the part, and the *C. tinct. serpentaria* as a diaphoretic. The tincture of *xanthoxylum*, or *macrotys*, &c., are excellent remedies. Aside from the alkaline pack, frequently renewed, I am not a believer in local applications. It is true, various remedies are employed for this purpose, stimulant, narcotic, sedative, rubefacient, &c., &c. A very good liniment for rheumatism is the following:

R<sub>y</sub>.—Chloroform,  
Tinct. aconite,  
Belladonna, āā, or,

R<sub>y</sub>.—Aqua ammonia,  
Olive oil,  
Tincture aconite,  
Chloroform, āā,

Or oil of sassafras, chloroform, cloves, hemlock and alcohol, āā, is also a good application to relieve pain; or equal parts of the tinctures of



phytolacca, stramonium and belladonna, is sometimes valuable in articular rheumatism.

Each individual case should be treated specially to the indications, flannel should be worn next the skin, while the acute stage lasts, perfect rest should be maintained—rest is an important element of cure. The patient may be allowed to drink freely, and a liberal diet, but on no account, must there be any article given which will provoke acidity in any form of digestion. All complications should be carefully guarded against, more especially those of cardiac disease.

In the sub-acute form, the best results follow the use of the following remedies:

R<sub>x</sub>.—Vinum colchicum, rad., ℥i;  
Sulph. quinine, gr. xx.—*M.*

A teaspoonful until it acts on the bowels freely; then give

R<sub>x</sub>.—C. syr. stillingia, 0ss;  
Iodide potass, ℥i.—*M.*

Teaspoonful every three hours. If this, in forty-eight hours, does not give the effect desired, the following will be found useful:

R<sub>x</sub>.—Fl. ext. conii;  
Macrotys, āā ℥i;  
Iodide potass, ℥iii;  
Tinct. stramonium, ℥i;  
Aqua, ℥ii.—*M.*

Teaspoonful every three hours.

Chronic rheumatism is often the result of the acute or sub-acute form; but some cases seem to slowly develop themselves independent of them. Its causes are the same as the acute.

R<sub>x</sub>.—Alcohol, fl., ℥iv;  
Sp. camph., fl., ℥ii;  
Sp. turpentine, fl., ℥i;  
Sp. am., fl., ℥ii;  
Linseed oil, fl., ℥ii.—*M.*

Bathe three to four times daily; every evening wash the part with strong solution of saleratus or soda. Full dose of Beach's diaphoretic powder every evening; the patient kept in a warm room.

The treatment must be varied to correspond to the symptoms of each case. Imperfect or defective digestion lies at the root of nearly all cases; and this primary defect must be rectified; the treatment recommended under dyspepsia should be enforced. In the treatment, an emetic twice a week, followed with an alkali, a free use of the bitter tonics. Pain should be relieved by the following:

R<sub>x</sub>.—Ext. hyoscyamus;  
Lupulin and eyripedin, āā.

Make three-grain pill, and give one every three hours. As to special

treatment, the vegetable and saline alteratives are useful. Some of the following will be given with excellent results :

R<sub>y</sub>.—White pine turpentine, gr. xxx;  
Ext. phytolacca, gr. xxii;  
Macrotin, gr. xx;  
Apocynin, gr. x.—*M*.

Make three grain pills,—one every three hours. The C. syr. stil-  
lingia and iodide potass, or C. syr. frostwort, or corydalis, or col-  
chicum and quinine, or asclepias, gelsemin and macrotys, or,

R<sub>y</sub>.—Ext. conin;  
Phytolacca, āā ʒi;  
Tinct. macrotys, ʒi;  
Iodide potass, ʒiii;  
Aqua, ʒiii.—*M*.

Give in teaspoonful doses, every four hours. I have found a combina-  
tion of the C. tinct. guaicum, macrotin and xanthoxylin very effica-  
cious. In this form sufficient alkali should be given to keep the urine  
neutral. For the purpose of removing thickening, stiffness, &c., the  
following may be used with success: the irritating plaster,—apply to  
the diseased part to produce suppuration—podophyllin, phytolacca and  
cornus, pulverized and mixed up with bran, is also useful; belladonna,  
rubbed up in glycerine; electricity, &c.

For the purpose of invigorating the vital powers, bathing should be  
daily used,—either the vapor bath, warm bath, or douche. The other  
remedies of utility in chronic rheumatism, are *rhus*, *aconite*, *bella-*  
*donna*, *pulsatilla*, *dulcamara*, *nux vomica*, *phosphorus*, *sulphur*, *colo-*  
*cynth*, *lobelia*, *iodine* and *cinchona*,—all useful to meet their specific  
indications; if the case is inveterate and abnormal, depositions occur  
about joints, with thickening of the membranes and tissues, with per-  
manent rigidity, weakness, tenderness on motion.

TREATMENT OF GOUT.—This is closely allied to articular rheuma-  
tism; the distinctive features of the disease consisting in the presence  
within and around certain joints of chalk-like concretions, composed,  
in large proportion, of the urate of soda and lime, chloride of sodium,  
phosphate of lime, carbonate of ammonia and animal matter. This  
affection may be congenital or inherited; and acquired, certain dietetic  
habits lead to the acquirement of the diathesis, and co-operate in pro-  
ducing the disease,—such as the use of wine or beer. The diet of  
these patients should be light; chiefly amylaceous diluents should be  
freely used; alcoholic stimulants should be avoided, and simple alka-  
line remedies, in alternation with colchicum. Colchicum has special  
influence over the disease, causing an elimination of uric acid secreted  
by the kidney; and when given with alkalies, dissolving the lithate of  
soda, and would seem to have the property of keeping it in solution  
until it is eliminated by the natural emunctories.

Colchicum may be combined with small doses of veratrum, and given  
in from a half drachm to drachm doses; it should be continued in small  
doses, never carrying it to the extent of vomiting or purging—the

special influence of the colchicum, combined with veratrum, is independent of emesis or purging.

If purgatives are demanded, salines are indicated with the view of promoting the solubility of the uric acid or lithate of soda. The different salts of potassa are indicated, as being the most soluble, tend best to eliminate the uric acid by the kidneys; the alkaline may be given with the colchicum.

The phosphate of ammonia is an excellent alkaline agent, it forms a soluble salt readily eliminated by the combination of uric acid and ammonia, the phosphoric acid combining with the soda and forming another soluble salt. Ten grains three times daily. The benzoic acid has the same properties, and should be given in the same doses.

Carbonate of lithia possesses the remarkable property of possessing the most soluble salt of uric acid that is known. An excellent remedy producing no unpleasant consequences, although continued for a long time. It should be given largely diluted in carbonated water, but this and other remedies can only be considered as an adjunct to colchicum and veratrum.

The principal remedies to aid in the adjunct treatment of acute gout are nux vomica, aconite, rhus radicans, guaiacum, cinchona, and if the case is chronic, gold, iodide, phosphoric acid, sulphur, &c.

Opiates, as hyoscium and lupulin, or the diaphoretic powder, or hypodermic injection. As regards local treatment, lobelia is the best agent applied in the form of tincture or fomentation. Removal of known causes of gout is an essential part of treatment, all exciting causes should be avoided.

In the chronic form, the removal of causes which promote the gouty diathesis, exciting causes rank first in importance. Hygiene is of great importance. Alkalies, the carbonate of lithia in small doses, largely diluted. If exacerbations of the disease threatens, resort to full doses of colchicum and small doses of veratrum. Other remedies, as gold, iodide of potass, guaiacum, phosphate of ammonia, benzoic acid. The diet should never be inadequate to nutrition, plain, substantial.

To relieve stiffness and soreness of the joints, friction, or shampooing, is highly useful.

## POISONS.

*Poisons are of three kinds: mineral, vegetable, and animal.*

Mineral poisons are to be distinguished from vegetable ones by their action. The former corrode, stimulate or inflame; the latter generally stupefy, and leave no marks of inflammation. Some of the mineral poisons do not terminate life till after a most excruciating operation of some time; whereas, some of the vegetable class destroy life in a few minutes.

From the animal poisons the distinction is striking. In all cases of poisoning, the first step is to evacuate the stomach, which should be effected by one of the emetics which is most powerful and speedy in its operation, as lobelia, or mustard. When vomiting has already

taken place, copious draughts of warm water, or mucilaginous drinks, should be given, to keep up the effect until the poisonous substance has been evacuated. If vomiting cannot be produced, the stomach pump must be used. This instrument will be found particularly useful in narcotic and arsenical poisoning; where corrosive poison has been taken, it is liable to produce laceration of the tissues.

Inflammation of the stomach, congestion of the brain, and other symptoms, are to be treated on general principles, viz: Cold applications, revulsives, cool mucilaginous drinks, lime-water, &c. When prostration exists, stimulants should be resorted to, as in other cases.

The following is a list of the usual poisoning substances, with the appropriate remedies:

## POISONS.

## ANTIDOTES.

*Acids.*

The alkalis, common soap (soft or hard), in solution, is an efficient remedy, and has the advantage of always being at hand. It should be followed by copious draughts of tepid water or flaxseed tea. For nitric and oxalic acids, the carbonates of magnesia and lime (chalk water), are the best antidotes. When sulphuric acid has been taken, the use of much water is improper.

*Alkalies and their salts.*

The vegetable acids, common vinegar being always at hand, is most frequently used. The fixed oils, as castor, almond, flaxseed and olive oils, form soaps with the alkalis, and thus also destroy their caustic effect. They should be given in large quantities.

*Earths.**Baryta and its salts.**Lime, iodine, iodide of potassium.*

Epsom or glauber salts in solution, or diluted sulphuric acid. The fixed oils, also, have the same effect as with the alkalis proper, when not in a compound state. Starch, wheat flour, or arrow root, in large quantities, well mixed with water. Let the patient drink freely of starch or wheat flour in solution, and after this of a strong mixture of vinegar and water, (any acid in which there is oxygen will answer), when this is done the whole process of saving the patient's life is accomplished. The whole should then be removed by a mild aperient.

*Antimony and its salts.**Arsenic and its compounds.*

Astringent infusions as of galls, oak bark, Peruvian bark or green tea, very strong.

Any oil or fat, sweet oil, butter, or milk. Magnesia in large quantity. Hydrated peroxide of iron, in tablespoonful doses every five or ten minutes. If this cannot be obtained, magnesia, animal charcoal, or equal parts of oil and lime water, may be administered.

## TO MAKE HYDRATED PEROXIDE OF IRON.—

“Take of sulphate of iron, four ounces; sulphuric acid, three fluid drachms and a half; nitric acid, six fluid drachms, or a sufficient quantity; solution of ammonia, a sufficient quantity; water, two pints; dissolve the sulphate of iron in the water, and having added the sulphuric acid, boil the solution; then add the nitric acid in small portion, boiling the liquid a minute or two after each addition until the acid ceases to produce a dark color. Filter the liquid, allow it to cool, and add solution of ammonia in excess, stirring the mixture briskly. Wash the precipitate with water, and keep it in close bottles, with sufficient water to cover it.”



- Bismuth and its compounds.* Albumen, copious draughts of milk, combined with sweet mucilaginous drinks.
- Copper and its compounds.* Ferrocyanuret of potassium, (freely) albumen, as milk or white of eggs in solution, should be administered. Vinegar must be avoided; magnesia.
- Salts of gold.* Sulphate of iron with a free use of mucilaginous drinks.
- Salts of iron.* Carbonate of soda with mucilaginous drinks.
- Lead, salts of.* Sulphate of magnesia (epsom salt), sulphate of soda (glauber salt), or diluted sulphuric acid, lemonade, hydrated sesqui-sulphuret of iron.
- Mercury, salts of.* Albumen, as white of eggs, milk or wheat flour, beaten up with water, to be followed by an emetic of lobelia.
- Silver, salts of.* Common salt (chloride of sodium) freely given.
- Tin, salts of.* Albumen, white of eggs, milk or flour.
- Zinc, salts of.* Albumen or carbonate of soda, with copious draughts of warm water and milk especially.
- Phosphorus.* Magnesia with water, and copious draughts of mucilaginous drinks.
- Gases.* Ammonia cautiously inhaled, is recommended for chlorine. Asphyxia, produced by carbonic acid or carbonic oxide gases, or sulphuretted hydrogen, must be treated by copious effusions of cold water, especially to the head, artificial respiration, stimulants carefully administered, &c.
- Creosote.* Albumen or whites of eggs, milk or wheat flour.
- Alcohol or spirituous liquors.* A powerful emetic of lobelia should be given, followed by copious draughts of warm water. Congestion of the brain and other symptoms must be treated on general principles.
- Opium and other narcotics.* The chief reliance is to be placed on the most active emetics and the stomach pump. Emetics are preferable to the stomach pump, when the narcotic has been taken in substance. The patient should be kept in motion, and cold water dashed over the head and shoulders. Should the above means fail, the electro-magnetic battery, or if that cannot be obtained, artificial respiration may be resorted to.
- Strychnia.* Emetics should be freely given. If vomiting cannot be produced, or proves useless, chloroform, by inhalation, should be administered, camphor in large doses.
- Arnica.* Vinegar.
- Aconite.* Stimulants, externally and internally.

## POISON OF ANIMALS.

The bite or sting of any insect is usually not sufficient to need surgical assistance. Among the best remedies for poisoned wounds of this

class are the camphor mixture—the arnicated collodion—bromine, ammonia, and the tincture of apis-mellifica.

The bites of serpents, vipers, rattlesnakes, &c., are all poisonous, and the introduction of the poison into the blood causes nausea, a full, strong, agitated pulse; swelling of the whole body; eyes much suffused with blood; sometimes copious bloody sweats; and often hemorrhages from the eyes, nose and ears.

The symptoms which attend the bite of a viper are, acute pain in the wounded part, together with a considerable degree of swelling, that is at first red, but afterwards becomes livid, and diffuses itself over the neighboring parts. After a short time, the constitutional symptoms manifest themselves, by a small intermitting pulse, nausea, vomiting, great prostration of the nervous system.

When a patient has been wounded by a venomous snake, the first step to be adopted is, to pass a ligature above the injured part if possible, so as to prevent, as far as possible, the absorption of the virus into the system, and then to evacuate that which has been already absorbed by suction to the wound, by promoting the discharge of serum and blood from it, by means of scarifications, cupping, excision, and the application of the caustic potash. After that, various remedies of good repute may be applied, as the fresh juice of the rattlesnake plantain, a powerful remedy against the poison; if that is not convenient, a strong solution of common salt can always be obtained, and has proved an effectual remedy against the bite if immediately applied. Lemon juice and salt have been found of great utility. Ammonia and the sulphites, locally and internally, should never be neglected in the treatment of these bites.

The internal treatment should be such as to eliminate, neutralize and overcome the septic action of the poison. The comp. tinct. of lobelia, should be freely given, so as to excite a powerful revulsive action, free emesis, an abundant discharge of bile, and powerful sudorifics. To favor the action of an emetic, the patient might drink an infusion of skull-cap, or the juice of the garden rue, or the aristolochia or snakeweed.

After the action of the emetic, and having attended to the wound, then stimulants should be given, such as brandy, ammonia, xanthoxilin, capsicum, and if there is constriction of the chest, gelsemin; or lobelia and belladonna should be given. Alkalies have a beneficial effect, hence, if there are facilities, the immersion of the patient in an alkaline bath for half an hour is good practice. The treatment by ammonia has many warm advocates, being a good agent to combat the torpor. Brandy has had some warm and enthusiastic admirers, if commenced with; persevere with it, and give it liberally, untiringly, a tablespoonful every ten minutes; it is a remedy that can be relied upon with the greatest confidence, and to be certain of the result, perfect intoxication should be produced; this is the best evidence of the anti-septic properties of the alcohol overcoming the poison.

The local and internal use of guaiacum is said to be unerring in its

efficacy. Arsenic and Bibron's antidote\* have been the pillars of the old school profession, and it is a singular fact that persons bitten by the most poisonous forms of reptiles have completely recovered by the exhibition of these remedies in large doses, which would seem dangerous and very formidable treatment, but it would seem to stimulate the semi-lunar ganglion, and its tributaries presiding over organic life.

A decoction of the leaves and root of the male fern, is esteemed a specific for snake bites; the provings or experiments with this plant have been highly satisfactory; in all cases, however, we would recommend the use of suction, excision, caustics, prevent contamination of the blood, by preventing absorption into that fluid.

## POISONS OF SUBJECTS.

Whenever life ceases, a change takes place in the bodies of all animals, the tendency of which is to reduce them to the simple materials; original constituents, water, carbonic acid, ammonia and earths. During the process of this change, a number of complex substances are liable to be formed, which have a most deleterious effect if introduced into the blood of living animals. They are known as septic poisons, and they produce in the living body, the same state of decomposition as they are undergoing themselves. They usually consist of gaseous emanations, faint, sickly, naseous; putrid, deleterious gases which are absorbed into the blood, the skin and bronchial mucous membrane, are the points of ingress; they are eliminated by the skin, mucous membrane, without any alteration of their sensible qualities; and that their elimination, by the gastro-intestinal mucous membrane, is the chief cause of the diarrhoea so common among medical students.

**DISSECTION WOUNDS.**—The most important consequences of wounds inoculated with the septic poison from a subject, are inflammation of the lymphatics, and diffuse inflammation of the cellular tissue. This description of wounds gives rise to a great variety and complication of symptoms. In some cases, the poison having gained access through a wound into the blood, we have symptoms of constitutional contamination, as manifested by the rigors, headache, vomiting, pulse frequent and sharp, tongue coated, great restlessness and despondency. In other cases we may have a pustule on or near the wound; the pustule may be unattended with pain, but there is usually a most excruciating pain in the shoulder of the affected side, with fulness of the axillæ and neck; a doughy swelling on the side of the trunk, often extending from the axilla to the ilium; this soon assumes an erysipelatous redness. The symptoms become aggravated, breathing difficult—pulse quicker and quicker—the tongue brown, dry, tremulous; mental distress appalling, soon delirium, countenance haggard, the skin yellow,

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\* Bibron's antidote is composed of the following.

R.—Iodide potassa, gr. iv;  
Hydrar. bi-chlor., gr. ii;  
Bromine, ʒv.—M.

Ten drops, diluted with a tablespoonful of brandy, as indicated.

and the patient gradually expires. In another class of cases we have this order of things reversed, the patient dying of the precursory fever, before sufficient time has elapsed for the appearance of the local disease. In another class of cases we have diffuse cellular abscess in the remote parts; in another class of cases, we may have the lymphatic vessels affected with all the other symptoms of the peculiar depressing effects of the absorption of a poison. These different phases, the result of dissecting wounds, are unquestionably due to the absorption of poison, it acting in different degrees of intensity, according to the vital powers of the patient. As a general thing, the disease most frequently arises from fresh subjects; the most dangerous poison is destroyed by putrefaction. The most deadly virus is that contained in the bodies of women who have died of puerperal fever.

**TREATMENT.**—The indications clearly are, to support the nervous system in its state of depression, to eliminate the poison from the blood, to relieve pain, tension and promote the discharge of pus or sloughs.

As soon as the patient is noticed indisposed, after a wound from dissection, it is highly advisable to begin treatment. An emetic of the comp. powder of lobelia, following this with drinking freely of composition tea; free emesis. Then give the patient an alcoholic vapor bath, continuing free diaphoresis for some time. After these, give an active dose of podophyllin, and fluid extract of senna, active purgation. This course of treatment should be followed by large doses of sulphite of soda, alternated with the permanganate of potash and comp. syr. stillingia, with iodide potass. Sponge the entire surface every three hours. Keep the kidneys, bowels, all the great emunctories open, and neutralize the septic poison by appropriate remedies. Thorough hygiene should be the rule—good, blood-elaborating diet should be given, and as soon as the patient can be removed, fresh country air, and convalescence established on tonics, &c., &c.

## HYDROPHOBIA.

The term hydrophobia, or dread of water, is given to that fearful malady, which follows the bite of a rabid animal, and the introduction of its saliva into the blood. A dread of water is not of necessity a characteristic symptom; it is not always present. In the lower animals, rabies originates spontaneously, and whatever the primary cause, it will latterly appear to consist of a morbid deterioration of the saliva. The precise nature of this deterioration, or of the specific poison which this fluid contains, is at the present time entirely unknown; but of its specific action on some portion of the great nerve centres there can be no doubt, some important unappreciable change in the cerebral substance or spinal cord.

**PATHOLOGY.**—No change of structure that has been discovered can be considered as essential to the existence of hydrophobia.

Even the redness of the fauces, and œsophagus, is attributable more to the irritation consequent upon the intense and never gratified



thirst, which is present during an attack, than to any specific virus in those parts.

The virus of rabies is generated and active in the saliva, but a certain quantity is necessary to be absorbed into the general circulation, to produce the morbid impression upon the spinal marrow which constitutes the disease. The virus would seem to possess a specific affinity for the saliva, and it is among the salivary glands that it produces its legitimate morbid impression.

It is a singular fact, one that deserves great consideration, that the virus which alone is capable of transmitting the affection, should be exclusively localized within one single apparatus without existing in the blood at large. The inhabitants of some countries eat the flesh of hydrophobic animals with impunity, the lacteals and absorbents rejecting or rather not having an affinity for the irritant, and is carried off by the natural channels, without producing an impression. Indeed, it has been experimentally demonstrated, that the peculiar venomous principle does not exist in the blood.

DURATION.—*Hydrophobia* usually makes its appearance in from twenty to sixty days after the bite, although well authenticated cases are recorded, in which the virus has remained dormant in the system for years, when it has finally developed itself from some constitutional disturbance, and the patient has succumbed with all the symptoms of hydrophobia. The disease commonly terminates in from two to eight days from its approach.

SYMPTOMS.—The stages and symptoms of this terrible disease are three-fold.

1. The stage of *incubation* varies from twenty to sixty days after the bite. If six months elapse the patient may be assured of safety.

2. *In the second stage* we have some significant symptoms, the bitten part presents a livid appearance, and is attended with burning heat and shooting pains, darting from the seat of injury to the adjacent parts. Sometimes we have a numbness or partial palsy.

3. *In this stage* we have the actual symptoms of the disease. The patient finding himself unwell, irritable, gloomy, he experiences rigors, lassitude, and depression of spirits, anxiety, watchfulness, giddiness, eyes red, brilliant, sensitive to the light, uneasy sensations at the stomach, tension of the chest, difficulty of deglutition, and slightly oppressed respiration. As the disease advances, the cramps about the throat, chest and neck become more violent, until the mere sight of a liquid or a shining substance, will produce the most painful paroxysms; there is a viscid saliva constantly secreted, which compels the victim to be continually spitting, while at the same time he is tormented with a dryness in the mouth and throat, and an intense thirst, which he is unable to allay on account of the spasmodic contractions which occur, when drinks are presented to him. The skin is hot and dry, respiration becomes more and more difficult, the voice is changed, the pulse nearly natural, the body affected with tremors, spasmodic twitching, stiffness of the neck, soreness of the throat, spasmodic pain in the epigastrium, it may be a sighing respiration, vague pains extend up from the lower part of the spine to the head, the countenance becomes pale and haggard, the

eyes sunken, and still all these symptoms may be referred to a cold, and their real nature is not suspected, till all on a sudden, the patient on attempting to drink is seized with a fit of suffocative spasm—or it may be there may be great spasm of the heart, wandering delirium, constant inclination to bite, extreme anxiety and uneasiness, sinking of the pulse, loss of voice, clammy sweats, and the sufferer sinks into a state of lethargy, or into convulsions, and dies. Once the disease has established itself, there are three prominent symptoms, as well as there are three stages of the disease.

1. *Difficulty of breathing and swallowing.*
2. *Extreme irritability of the body, and*
3. *Peculiar disorder of the mind.*

(a.) The *difficulty of breathing and swallowing* depends on spasms of the larynx and pharynx.

In some cases the patient can neither swallow liquids nor solids, but the irritability extends to fluids because they require greater exertion of those particular muscles affected.

(b.) *Next to the above, the astonishing irritability of the surface of the body is a most prominent symptom.*

(c.) *The state of mind is a characteristic one, of profound despair—an utter incapacity for all comfort and consolation.*

MORBID ANATOMY.—The morbid appearances most frequently are, congestion of the membranes and substance of the brain and spinal cord, with effusion of serum. Sometimes blood is extravasated around the cervical portion of the cord. The lining membrane of the fauces, œsophagus, trachea and bronchi are highly vascular; the papillæ at the root of the tongue, large; and the lungs congested. The stomach usually contains a darkish fluid, and patches of vascularity are detected in the intestines.

DIAGNOSIS.—This is never very difficult, if a correct observation be made, but laying aside all the minor symptoms, the irritability of the skin—the shrinking, convulsions and catching of the breath, induced by the slightest vibration of the air, and the salivation will enable you to form a correct diagnosis.

TREATMENT.—The most certain preventive measures after the bite of a rabid animal is to excise immediately and thoroughly the wounded part. This, however, will prove only of utility if performed within half an hour after the bite. If a longer time has elapsed, free incisions and counter-incisions, about the wounded part, and after it has bled freely, (suction must be used,) and been washed, the most thorough application of the vegetable caustic—*caustic potassa being a most powerful alkali*; the poison of hydrophobia supposed to be an acid, the most liberal application is pre-eminently demanded. The wound should be treated with alkaline poultices. The poison of hydrophobia acts solely on the nervous system, the qualities of blood are not altered by it.

We are well aware that no specific has yet been discovered for the cure of this disease, although many articles have been brought before the profession as specifics. The best preventive treatment is excision, scarification, cupping, and the application of a caustic alkali; main-

taining a higher standard of health, and administering such remedies as an infusion of skull-cap, guaiacum. If the disease has made its appearance, our resources are very meagre, but often successful.

The comp. tinct. of lobelia has the power to aid us much in counteracting the poison, and it should be the first remedy given, administered at the first symptoms of the appearance of disease. This is to be repeated, dose after dose, till the system is completely prostrated, and the patient is unable to lift a hand. We do not claim this as a specific antidote, but the best agent to begin with, to overcome the most dreadful of animal poisons.

After thorough prostration is induced and maintained, then the special treatment I have found successful, consists in the exhibition of large doses of ammonia and scutellarin.

Ammonia is a remedy that should never be overlooked, from twenty to twenty-five grains of the carbonate in alternation with an equal amount of scutellarin, should be vigorously persevered with. At the same time, support in the shape of brandy and milk, or brandy and beef essence, should be regularly given.

An alcoholic vapor-bath should daily be resorted to, no other form of bathing has been of any use, cold water sponging always aggravates the disease; the vapor of alcohol conveyed by some suitable apparatus under the bed-clothes, has a most salutary effect.

The scutellarin has been well tested in hydrophobia, but it must not be depended on alone.

Having by this thorough and active treatment, controlled the most violent manifestations of the disease, then our means and remedies are more abundant and positive.

Hydrocyanic acid, if the laryngeal and pharyngeal nerves are tenaciously affected, is an excellent remedy in the second stage of the disease. Belladonna is entitled to our warmest consideration in the same stage, especially indicated, if the articulation is difficult and the voice changed, great giddiness, weakness, trembling, mouth and jaws spasmodically affected—it should be given to produce dilatation of the pupil. If it does not act promptly, combine it with drosera.

Stramonium is also a valuable remedy in this stage, as its utility has been over and over again demonstrated in stammering, so has it done wonders in hydrophobia. The resinous extract of Indian hemp, aconite, gelsemin, chloroform, chloride of zinc, &c., are highly recommended in this disease. There has been a whole tribe of remedies used in this disease, from the bleeding, digitalis, chloroform, mercury, &c., of the Old School, to lachesis, nuxvomica, chickweed, belladonna, of the Homœopathic School, to the more positive agents of the Reformed School.

At the time treatment is being carried rigorously out, counter-irritation should be applied to the limbs and spine; to the former, either mustard or capsicum; to the latter, painting with tincture iodine, in which morphia has been dissolved, then the irritating plaster, get suppuration. After having controlled all the symptoms of the disease, convalescence should be established upon tonics, as hydrastin, cinchona and phosphorus. The uniform success of the

Reformed profession is strikingly contrasted with the utter hopelessness of other members of our profession.

### GLANDERS.

*Glanders* is a disease peculiar to horses, but communicable to man and other animals. It is chiefly manifested by unhealthy suppuration of the mucous membrane, of the nasal cavities, pustular eruptions on the skin, and abscesses in the lymphatic system. In some subjects the poison would seem to have a peculiar affinity for the lymphatic system, and if so, it is technically designated pharcy; in others it would seem to spread its virus on the nasal cavities, when it is called glanders; both being identical. The most prominent symptoms of glanders are a continued discharge or flow from one or both of the nostrils, at first thin and serous; then thick and glairy, resembling the white of an egg; and after a while it becomes opaque, purulent, bloody, viscid, and intensely offensive. The glands and lymphatics about the throat are enlarged, ulcers are detected on the Schneiderian membrane, with sharp edges, scooped out, having a tendency to spread widely and deeply, and terminate in caries of the bone. The lips and eyelids become congested, the extended parts of the face become gangrenous in patches, and the patient may die, or if the vital forces are strong, the patient may die more slowly, the disease spreading to the throat and lungs, and being induced by cough, emaciation, hectic, and the formation of abscesses in different parts of the body. It may be acute or chronic. In the acute form we have all the symptoms which indicate the absorption of a putrid and terribly destructive poison, indisposition, depression of spirits, wandering pains, fever, furred tongue, great thirst, profuse perspiration, pain in the back, head, limbs, and constriction of the chest, rigors, delirium, perspirations become sour and offensive, and diarrhœa of a like character. Then abscesses about the joints, heat and soreness in the throat, and the fever of the most malignant character. Then tumefaction about the face, and then the characteristic discharge appears, a portion of the eyelids mortify, the discharge becomes more profuse and offensive, the pustules spread, fresh abscesses form, and the patient dies a horrid spectacle. In the human subject, the disease is either due to contagion or infection.

PROGNOSIS.—This is highly unfavorable.

*Morbid appearances* are clusters of granules or tubercles, found in every tissue where the disease manifests itself,—in the Schneiderian membrane, in the frontal sinuses. Usually the nasal cavities are studded with foul gangrenous ulcers, from which emanate clusters of tubercular matter.

*PATHOLOGY.*—The disease is due to a contamination of the blood with poisonous matter; the blood evidently contains the morbid principle; the virus pervades the whole system. This is evident from the whole train of symptoms.

*TREATMENT.*—The indications of treatment are to overcome and eliminate a morbid poison. For this purpose, it is a good plan to begin



treatment with an emetic of comp. powder of lobelia, and follow with an active cathartic. A vapor bath at the same time should be administered; the patient should be put to bed, and as large doses of the sulphite of soda should be administered as the stomach can bear. This remedy should be persevered with steadily and faithfully. The emetic and vapor bath might be repeated, and so forth; the indications must be met by arresting the local and constitutional character of the disease. Every symptom should be watched and controlled, and the general contamination of the fluids and solids should be prevented; and above all things, the powers of life should be well supported. We might alternate the sulphites with full doses of the sesqui-carbonate of ammonia,—an excellent remedy.

*Our means* must be applied energetically, and bear a ratio to the violence of the disease; and if the local symptoms actively show themselves, the constitutional powers should be aided in opposing their extension. All abscesses should be opened early; as soon as their formation can be detected, the nasal cavities should be syringed with a solution of permanganate of potash or pyroligneous acid; phenol sodique, creosote, inhalation is of great service, such as the more volatile, stimulating antiseptics,—as the warm aqueous vapor of bromine or chlorine. The effluvia must be counteracted by sprinkling the solution of the chlorides or pyroligneous acid, or bromine freely about the apartment. The Allopaths are fond of creosote, camphor, turpentine; but such agents as the chlorate or permanganate of potash, chlorinated soda, put in an inhaler, and used, are certainly invaluable. At the same time, keep up the action of stimulating diaphoretics; the alcoholic vapor bath, with the fumes of iodine in it, baths of the strumatic salts, the ordinary warm bath, containing a sulphuret, or a bath made with stimulating herbs, the nitro-hydrochloric acid or chlorine baths are severally deserving of consideration. Depletion is inadmissible. Cases are recorded where turpentine fomentation, as warm as can be endured, as well as turpentine internally, in small but repeated doses, given with an aromatic, was successful. In the chronic, as well as in the acute stage of the malady, brandy and tonics, free secretions, with cinchona, capsicum, eypripedin and scutellarin; the various antiseptics, alterative diaphoretics, as guaiacum, xanthoxylin, stillingia, with fumigating or mediated warm baths.

### PROSTRATION OR COLLAPSE.

*Prostration or Collapse*, or shock to the nervous system, that general depression of the vital forces which follows an injury.

**SYMPTOMS.**—The symptoms vary in different cases, although they usually present one uniform character. The patient lies cold, shivering, half unconscious; with a feeble pulse, sighing respiration, great anxiety about the heart, face flushed, vomiting. But these symptoms are liable to great modification, for they may not only differ in degree, but the principal bodily functions may be equally disordered in different cases. In some cases we may have depression of the vascular system predominating, and the patient lying in a state of perfect

syncope, with the pulse and respiration almost imperceptible. Again, in other cases, the nervous system is chiefly affected; the patient being bewildered, incoherent or even comatose; nausea, vomiting, hiccough, suppression of urine, convulsions, being very frequent symptoms. In some cases they pass off speedily; in others, again, they may remain for forty-eight hours before reaction is perfectly established.

**TERMINATIONS.**—The prognosis will be the more unfavorable in proportion as the injury was violent. The process of recovery from collapse is called reaction; and the manner in which the case may terminate depends very much on the nature and degree of that reaction. If it is healthy, if it is moderate; and more especially if the collapse arise merely from the concussion of an organ, without actual injury to its structure, it will lead to complete recovery. If reaction be excessive, the state of collapse will be gradually succeeded by fever, symptomatic of the inflammation to which the local injury has given origin. If reaction be imperfectly developed, we will have prostration, with excitement. If reaction be altogether wanting, the collapse may terminate in death. Death may occur on the receiving of the injury, if it be of extreme severity; or the patient might die more slowly, the pulse becoming fainter, and finally ceasing; and the respiration more and more slow and oppressed, till the vital spark gradually ebbs out.

**CAUSES.**—These symptoms may be caused by every variety of injury to which the body is liable. Great and sudden extremes of heat or cold, grief or joy, fear, large doses of any active poison, the sudden impression of miasma or any morbid poison, great loss of blood, mechanical injuries, and so forth. Certain injuries are more apt to be followed by fatal prostration or collapse than others,—such as an injury or concussion of the stomach or brain, injuries of joints, gun-shot wounds, extensive burns, excessive pain, injuries to infants or the aged, or to those whose constitutions are enfeebled by intemperance or by some chronic, organic disease.

**TREATMENT.**—The principal indication is to excite the vital organs to a moderate and healthy reaction. If the patient is shivering, with cold skin and feeble pulse, diffusible stimulants should be administered, such as hot brandy and water, capsicum, xanthoxylum, ammonia, &c. Heated bricks, bottles of warm water, should be placed under the axillæ and between the thighs; and every few minutes the application of scorching hot pillows to the spine is an effectual method of rousing up nature's energies; at the same time the entire surface might be advantageously bathed with tinct. capsicum, the patient should be comfortably covered till the circulation is restored and the pulse has acquired permanent strength and fulness. If these measures do not quickly succeed in aiding reaction, stimulating enemata of brandy, tincture capsici, xanthoxylum, turpentine might be resorted to with decided benefit. Vomiting, if persistent, might be allayed by full doses of neutralizing mixture with cyprædin, with the application of capsicum and vinegar to the epigastrium or a stimulating enema. Powerful counter-irritation to the spine, brisk friction to the surface, dealing actively with the patient, are all highly beneficial. Hiccough may be relieved with a few drops of chloroform, and liquor opii sedative, or

ammonia, or xanthoxylin. If the reaction is attended with excessive excitement, it must be allayed by the guarded exhibition of such remedies as aconite or veratrum. Sleep must be secured by all means; for this purpose an excellent combination is one-quarter grain of morphia to one grain of ext. hyosciamus in camphor water; or hyosciamus and lupulin, or chlorodine, or tincture of opii and chloroform, and all failing, the subcutaneous injection of a solution of morphia. The patient must have sleep, it is essential for recuperation, support must not be neglected, beef essence, bland nourishment. Convulsions, delirium and coma must in all cases be treated according to the state of the circulation by capsicum, xanthoxylin, ammonia and other stimulants if depressed, but if they remain after the circulation is restored to its normal standard and the pulse has become firm, we must resort to other means, ice to the spine. Cathartics, jalapin and podophyllin, cold to the head, counter-irritation to the extremities, and some anti-spasmodic internally, such as lobelia. If the delirium be purely nervous, cypripedin, scutellarin and nux vomica are the remedies; if debility be very great, white of egg and brandy; if restlessness be extreme, a suppository of hyosciamus and opium, āā gr. i; if the patient has been an habitual inebriate, I have always found it good practice to give a little of his favorite stimulant in combination with some vegetable tonic. Boisterous conduct is best allayed with a good firm-minded nurse and appropriate remedies. In extreme cases, the head should be shaved and frequently bathed with cold water, and the secretions should be powerfully but not drastically acted upon. In those cases where the excessive excitement presents all the indications of inflammatory action, the exhibition of lobelia is attended with the most happy results. In the last stage, where coma supervenes, capsicum internally, counter-irritation by some strong stimulant to the spine, feet and calves of the legs. These things may all be tried, but when it reaches this point scarcely any means will avail. The great indication in prostration is stimulation, and to continue it long enough and to leave off gradually, for if the action of the heart be excited beyond its powers, it will be more liable to be permanently exhausted. The barbarous practice of bleeding patients before they have recovered from a state of faintness and depression, needs only to be mentioned to be emphatically condemned.

## OF THE DIFFERENT SPECIES OF INJURIES.

*Materials Employed in Dressing.*—In an emergency, almost any material may be used for surgical dressings, yet there are certain articles appropriately set apart for this purpose.

*Lint* is of more utility for certain purposes than anything else, as in making compresses, as a means of applying ointments, or lotions, or dry dressing to a part. The smooth side should be next the affected surface.

*Charpie* is composed of the separated threads of linen fabrics, tangled up, so as to form a porous mass. It is chiefly used for absorb-

ing discharges in the dressing of stumps, abscesses and suppurating wounds.

*Raw Cotton* is very useful for padding splints, or to protect parts especially exposed to pressure. It is very extensively used as a dressing to burns, saturated with vinegar, or olive oil and lime water.

*Bran* is employed chiefly in compound fractures. It is simply heaped over the affected parts, and acts by excluding the air, absorbing discharges, preventing flies from depositing their eggs in the wound, so as to breed maggots. It is an excellent dressing in hot weather, light, cool and clean, easily removed.

*Adhesive Plaster* is an article familiar to every one. It is merely lead plaster, with the addition of some resin, one part to six, spread upon one surface of thin muslin. It is used for keeping the lips of a wound in contact; for making compresses; for making extension and counter-extension in certain fractures, and disease of the hip joint. Adhesive plaster is very irritating, and should not be applied as a covering to wounds or sores, but used only on the sound skin. For applying, it should be cut into strips of appropriate size, and a can of hot water should be on hand, to the outside of which each strip should be applied before it is put on. Some use a spirit lamp, others resort to friction between the thumb and finger, &c.

To remove adhesive plaster, all that is necessary is to sponge it with hot water, which softens the adhesive material, or with the oil of turpentine, which dissolves it. Hairy parts should always be shaved before the plaster is applied.

*Isinglass Plaster* is very popular, and is made by washing over one side of thin silk with a spirituous solution of isinglass, and used like adhesive plaster, except that it is merely moistened with a sponge. It is very mild, unirritating. If neither of these forms of plaster be at hand, a substitute can readily be made by mixing flour with white of egg, so as to form a paste. Strips of linen or muslin imbued with this, and laid on the skin, will, in drying, take a firm hold, and wetting with water will readily loosen it.

*Collodion* is an excellent adhesive material, made by dissolving gun-cotton in sulphuric ether. After operations about the eye, wounds of the scalp, and, indeed, in all descriptions of wounds, where adhesive material is wanted, gauze and collodion, lead ribbon and collodion are superior to anything else. For this purpose the gauze or the lead ribbon is laid with its centre directly over the affected part, and then the collodion is painted over with a camel's-hair pencil, so as to attach each end of the gauze or lead ribbon to the sound skin beneath. Besides, collodion is a valuable agent where contraction is wanted for discussing such as nævi, vascular engorgements of the testicle, breast, &c.; for this purpose thirty grains of tannic acid added to the ounce, increases its contractile power amazingly.

To render collodion non-contractile, add to every ounce either half a drachm of castor oil or Venice turpentine. For the preparation of the blistering collodion, all that is necessary is the dissolving of the ethereal extract of cantharides in it. Some physicians use collodion as a vehicle for the application of creosote in erysipelas.



Ether is the agent to be used when the removal of the collodion is demanded.

*Waterglass* is used by some as a substitute for collodion, made by melting together 10 parts of potassa, 15 parts of powdered quartz, 1 part of charcoal, made into a mass, and dissolved in five parts of water, and the solution evaporated to the consistence of cream. This has an alkaline reaction, and, on account of its properties, is valuable for the stings of insects and snake bites.

*Poultices*, if well made, are exceedingly useful; they are intended to act mainly by their heat and moisture. Various materials are employed in making them. Slippery elm bark contains a great deal of mucilage, and is one of the very best emollients; flaxseed, indigo weed, Indian meal, carrot, are all good. Sometimes it is advisable to medicate poultices, with a view of meeting some indication, as adding opium, hops, indigo weed, poppy heads, &c. Fermenting poultices are not much used; they are made by adding yeast or porter to Indian meal. If the diseased part is very offensive, charcoal, pyroligneous acid, permanganate of potash, chlorinated soda, or some other disinfecting fluid should be used in addition. Astringent and stimulating poultices are sometimes employed to excite action in an indolent ulcer, as by the addition of phenol, hamamelin, oak bark, &c.

In the making of a poultice, certain rules ought to be observed; the mass should be well mixed, free from lumps, neither too thick nor too thin, evenly spread, in a layer of suitable thickness. All around the edges of the piece a margin of about an inch should be left uncovered, to be folded over to prevent the escape of certain portions of the mass. It is well with some poultices to lay it between two layers of thin muslin, or gauze, or drop a few drops of sweet oil smeared over its surface, to prevent its adhesion to the skin. They should never be suffered to become dry, but be frequently changed.

*Water Dressings* may be either warm or cold, simple or medicated. They are valuable for their cleanliness, simplicity, and ready accessibility, besides the physiological effect of water, which is valuable in certain cases.

*Cold water* acts by depressing the vital force of the part, and by inducing contraction of the non-striated muscular fibres, which enter into the structure of the skin. Ice water is a most excellent application in many cases, especially to compound fractures, gun-shot wounds, wounds of joints, and wounds of the head. Astringents, anodynes, and refrigerants, as tannin, extract stramonium, elm bark, sassafras pith, &c., may be added with advantage.

Irrigation is an excellent mode of applying water, one of the best modes of using water for the purpose of reducing inflammatory action—the continual dropping of cold water on the part. Irrigation may either be employed by means of a filtering apparatus, or a bottle with a notch in the cork, by a tube arranged to act as a syphon or a watering pot, may be substituted for the above.

Warm water has a soothing and relaxing effect upon any part to which it is applied. Lint or any soft fabric is a good medium for applying warm water, and is very frequently used medicated with such

agents as sulphate of zinc and chloride of zinc, tannin, sulphite of soda, mucilage of elm, &c.

Oakum has lately been introduced into the U. S. Navy, and is popular, with some; it is true, it is slightly astringent and antiseptic. If applied to a sore, it should be covered with oiled silk. The use of simple syrup or buttermilk, on account of the lactic acid they contain, is thought by some to be advantageous.

Ointment and cerates are now not so much used as in times past, wet dressings have taken their place in a great degree.

Lard, with all the salt carefully washed out; castor and sweet oil; castor oil and glycerine; simple cerate, veratrin ointment. Benzoated oxide of zinc ointment, the black salve, and a whole host of astringent and anodyne ointments. The application of sheet lead confined by adhesive strips, &c.

## ACCIDENTAL WOUNDS.

In the application of dressing to all wounds, the aim of the surgeon should be to promote the comfort of the patient as much as he possibly can; so that in the dressing of all wounds, the dressings should be ready, sponges, basins of water, Castile soap and towels; the part should be held by an assistant, and the bed clothes should be soiled as little as possible, and it should be borne in mind in applying all dressings that they have to be removed at some subsequent day.

*The treatment of all wounds should be on general principles.*

The principal indications are as follows :

1. *To arrest hemorrhage.*
2. *To remove foreign bodies.*
3. *To bring the divided part into apposition and keep them in union.*
4. *To promote adhesion and keep down inflammation.*

*Incised wounds* are made with clean cutting instruments, they are very apt to be attended with hemorrhage, &c.

In treatment we must first get rid of the foreign bodies, which are usually best removed, if done at once. The best instruments for the purpose are the fingers, aided by probes, forceps, if required, and free ablution by water. The hemorrhage must be arrested, by a raised position, by a bandage, compress, ligation of the vessel or acupressure.

The bleeding in all cases should be arrested perfectly, as giving the best chance of speedy adhesion.

Healing is best promoted by accurate adaptation of the edges of the wound, and by placing the parts at perfect rest, on a splint if necessary, and in such a position as will relax the muscles. Inflammation should be kept down; that is, the pulse should be kept at about 75, just at the point necessary for adhesion. This is best effected by opening the bowels, stimulating the kidneys and skin, and by administering aconite, veratrum, aesclepin. But if from some cause it is uncontrollable, and pain, swelling should supervene, then plasters, bandages and sutures should be abandoned till granulations begin. Then the parts may again be gently approximated, that they may

heal by the second intention, that is, by the inosculations of their granulations.

If a part has been abstracted, which cannot be restored; or if any kind of wound cannot be covered with skin, there are two ways in which it may heal, either with suppuration or without it. There are two ways in which open wounds may heal without suppuration;—by scabbing, the surface being kept dry, or by the modelling process, the surface being kept moist.

It always must be borne in mind that conservative surgery is the best surgery; and that separate parts, as the ear, nose, tip of the finger, may often be made to unite if accurately replaced before they are actually dead, and consequently an attempt at reposition should be made.

*Contusions* are almost invariably attended with ecchymosis, swelling and pain; they often terminate in an abscess.

A contusion is generally inflicted by some blunt, obtuse object, without perforation of the skin.

Much relief is afforded by acting thoroughly on the secretions, in order to produce absorption of the effusion; an elevated position, cold or ice water, or a bladder containing a frigorific mixture, should be applied. These measures, with thorough purgation, the absorption of the effused fluids, and the restoration of the part to its normal use, is to be accomplished with stimulating liniments, cold effusion, passive motion after the inflammation has been subdued. For this purpose, chloroform and sweet oil, alcohol, the roots of the briony, bruised, and applied in a poultice, has great efficacy in hastening the disappearance of bruises.

In the tincture of arnica we have a remedy of singular efficacy, applicable in all cases, from the most trifling to the most severe; it is a remedy unapproached in power by any one or combination of remedies. To bruises, to allay the smarting of wounds after operations, to fractures and dislocations, it has the effect of preventing ecchymosis, or getting rid of it. Its action seems to be confined chiefly to the cutaneous surface and adjacent textures. The probable effect of arnica, is that it produces anæsthesia of the cutaneous nerves, and even some influence on the ganglionic which surround the blood-vessels, and regulate their action; for it undoubtedly arrests the formation of ecchymosis. The practical efficacy of the remedy is incontrovertible.

*Lacerated wounds*, even when severe and extensive, are less apt than the incised to be followed with serious hemorrhage. But they are generally more difficult of coaptation; and there is often sloughing of their edges, which gives trouble. Suppuration is inevitable. Sutures are generally inadmissible here. Adhesive strips, not very tensely applied, may prevent the gaping of the wound. Cold or tepid water dressing is the best.

*Gun-shot wounds* are of especial importance and interest to the army surgeon. The hemorrhage from gun-shot wounds is very seldom dangerous, unless a large artery is partially cut across, so that it cannot retract, or unless the ball is moving so rapidly that its effect on the

tissues are like those of a knife. Life would be destroyed by the complete division of the carotid or femoral artery.

Secondary hemorrhage is much more common. The cleansing of the wound and the removal of foreign bodies cannot be too carefully attended to in this class of injuries. Whenever possible, the finger should be used instead of the probe, for the detection of matters which have lodged, the wound being somewhat enlarged for the purpose. A probe of suitable size should be used for the detection of the ball, but the finger has the great advantage of being able to detect bits of clothing, &c. Before making an examination of this kind, the injured part should be placed, as nearly as possible, in the exact position in which it was when struck. If a probe has to be employed, it should be curved or bent as much as possible, to enable it to follow the track of the ball. The greatest care and nicety should be observed in all this examination, and care should be taken to support the part so that the tissues may not yield before the probe or finger. Should the ball, a piece of shell or any foreign body, be distinctly felt under the skin at a distance from its point of entry, the proper way is to secure it in this position by suitable pressure, and then cut down upon and remove it. If the foreign body lies so near its point of entry that it can be readily reached, some form of bullet extractor or forceps should be used. After the wound has been cleared of all foreign bodies, it should be dressed, the edges should be gently brought into apposition by means of plaster, or lead ribbon, or gauze, and collodion. Either cold or warm applications may be applied, or dry dressing. Cold water is very convenient, also warm dressings, lint soaked in warm water. If there is any tendency of a gun-shot wound to sloughing, it is best treated by a carrot or charcoal poultice, or by daily washing with a lotion of permanganate of potash or phenol sodique. If sinuses occur, they should be cleansed and stimulated by caustic potash. A most important indication in the treatment of all wounds, is the arrest of hemorrhage—it is of vital importance, life often depends on it.

When an artery is wounded, the blood escapes in jets, synchronous with the pulsations of the heart, and is of a bright, red color. When a vein is wounded, there is a steady flow of dark purple blood. When the capillaries only are involved, there is an oozing of red blood; it may be quite free, but not from any given point. Hence we have arterial, venous and capillary hemorrhage. When an artery is completely divided, the blood may flow from its distal end very much as from a vein, but its color shows its true source. A vein lying close over a large artery, may, if divided, give forth its blood in jets, the throbbing of the artery being communicated to it, and here the dark color of the stream will be significant. Secondary hemorrhage is very troublesome and annoying. The spontaneous coagulation of the blood will, as a general case, arrest hemorrhage from wounded veins and capillaries, before a large quantity has been lost. In some individuals the tendency of the blood to coagulate, seems to be wanting entirely, and hence they are liable to profuse and dangerous bleeding



from very slight wounds; such a peculiarity often affects whole families, and is known as the hemorrhagic diathesis. Hemorrhage may be arrested spontaneously, by the following: the patient may faint, or the vessel may retract within its sheath, or it may contract, or the blood in the vessel may coagulate, and thus plug it up. If a large vessel is cut across, the flow of blood may be so great as to cause death from syncope, the brain being deprived of its usual stimulus and nutrition. The loss of a small quantity of blood will merely induce fainting; the heart failing to receive its usual stimulus from the nervous system, will act feebly, and the current of blood throughout the body will be slackened. When reaction takes place, the activity of the circulation will be renewed, and the bleeding will be apt to recur.

The influence of the contraction in calibre of the vessel in checking hemorrhage is of course evident; that of its retraction is rather more complex. In this we have shortening of the obliquely placed fibres of the outer coat of the vessel, the inner surface of the sheath is left exposed to contact with the flowing blood. This surface, being irregular, the blood is entangled and coagulated upon it; the sheath is also more easily narrowed and closed by the pressure of the surrounding tissues.

The coagulum which forms under such circumstance is partly situated within the sheath, but its more important portion runs up into the artery itself, obstructing its mouth and extending in a conical shape, latterly this clot and the walls of the vessel unite, and form a dense, fibrinous cord.

Hemorrhage may be artificially checked by absorbing remedies, as lint, charpie, cotton, dry sponge, agaric, and any dry inert powder.

Pressure is one of the most common and constant resources of the surgeon for the arrest or prevention of hemorrhage. In capillary hemorrhage it may be directly applied to a wound; lint, or some other substance of appropriate size should be applied and secured until the flow is stopped. Some surgeons adopt pressure on arteries of the third and fourth class, but the practice is not so neat nor so useful, as pressure over the vessel or vessels away from the wound, or before it reaches the wounded part, and accordingly we seek some portion of the vessel where the subjacent bone affords firm support. As to the mode of applying pressure, it may be done with the fingers, with the handle of the door key, well padded by the Spanish windlass, tourniquet, acupressure, &c., &c., each method being applicable to particular parts or vessels. In scalp wounds, a compress on each side of the wound, and thus securing them by a firmly applied bandage. On an emergency, the brachial, radial or ulnar may be compressed against the subjacent bone. The windlass which has been extensively used in military practice, is made by tying a handkerchief, rolled into a cord, around the limb, at a point above the wound; a stick is now passed between the handkerchief and the skin; as nearly as possible over the artery, and turned round and round so as to twist up the handkerchief, constrict the limb, and compress the artery. The tourniquet is used in all operations; there are several varieties. Acupressure is extremely

useful, where union by first intention is desired in amputations at the shoulder or knee joint its advantages are inestimable.

It consists merely in inserting a needle or needles, about two inches from the edge of the wound, through the skin behind the vessel, so as to compress the artery with sufficient force; if necessary to produce greater compression, this can be easily obtained by passing a figure eight over the needle. This plan is very simple, been extensively used, and answers extremely well in a large number of cases.

The ligature, now so commonly used, as a means of arresting the current of blood through arteries is usually composed of saddlers' silk. The immediate effect of surrounding an artery with a ligature, is the division of its inner and middle coats, and the occlusion of its channel; the contained blood coagulates, and sooner or later, the inner coat, and this coagulum becomes consolidated together for some distance; the clot extending far back. We generally look for the separation of ligatures, from the fifth to the twelfth day, after that of their application; it is due to the destructive ulceration of the vessels at the tied point. In the dressing of all wounds it is desirable always, to put a complete stop to the flow of the blood, if possible, hence the propriety of securing the very smallest vessel. Veins are never ligated except when divided in a wound.

*Torsion* or twisting will often close a small artery effectively. The vessel is simply grasped with a pair of forceps, and twisted; mere pinching answers for small vessels.

*Styptics* are very often indispensable, causing coagulation of the flowing blood, and contraction of the wounded tissues. There is an objection to this class of remedies, as they are apt to interfere with the subsequent process of healing, hence they should be resorted to only in urgent cases. Styptics are used either in the solid form, or in solution, or finely powdered. The usual remedies of this class, are erigeron, alum, tincture chloride of iron, persulphate or Monsul's salt, phenol sodique, galls in tincture, or powder, powdered matico leaves, Peruvian balsam, lemon juice. Cold is an excellent agent to check bleeding by lowering the vital activity of the part, and by causing the vessels and tissues surrounding them, to contract or shrink. It is easily applied; cloths dipped in ice water, or bladders filled with cold water, pounded ice, evaporating lotions, &c.

The actual cautery in old times held a high rank among surgical appliances, but it is now seldom resorted to as a hæmostatic. But if no other means were available, it might be prudent to resort to this agent. In concluding this subject in an operation, the tourniquet or pressure over the arterial trunk, the ligation of the vessel, either with the ligature or acupressure. General oozing from a surface may be combatted by pressure, directly applied, by elevation of the part, by ice, by styptics, &c.

To keep the edges of a wound in apposition, sutures are very valuable, although some eminent surgeons are strongly opposed to them. They are of great utility when the parts to be held in apposition are composed of lax and yielding tissue, and are of such a form that no purchase is afforded for adhesive strips, gauze and collodion, lead rib-

bon and collodion ; where accuracy is desired, and where it is desirable to avoid scars.

Various materials are used for making sutures, as saddler's silk, linen thread, metallic wire, gold, silver, iron, lead, platinum wire, are agents which bid fair to supersede animal and vegetable substances. The several different forms of suture, are the *interrupted*, the *twisted* or *hare-lip*, the *continued*, the *quilled*, the *button* suture. These we shall briefly notice.

1. The *interrupted suture* consists of separate loops or points, placed at less or greater intervals, according to the size of the wound, the shape of its edges, and its greater or less tendency to gape; nicety and good judgment should be shown in their distribution; perfect coaptation of the edges of the wound is essential to prevent subsequent deformity. Adhesive strips are generally applied in the interspaces between the sutures, so as to prevent the latter from being too much drawn upon by the surrounding tissues. Sutures generally accomplish their object in three or four days, and hence they need no longer be kept in place. They should be removed earlier if rendered tense by the swelling of the part.

2. The *twisted suture* is made by passing a pin through both edges of the wound to be closed, and then drawing them together upon it, by means of a waxed thread, or lead wire applied in the form of a figure eight. It is chiefly employed in the deformity known as hare-lip; this suture is known as hare-lip suture, and the pins hare-lip pins. The pins are usually made of steel or silver, covered with amalgam. The pins should be inserted one by one, and the wire or thread applied, as each needle is inserted. In about two or three days, the pins may be withdrawn, by grasping them with a pair of forceps, and pulling them with a slight rotary motion.

3. The *continued suture* is very little used, except in sewing up bodies after post-mortem examinations. The objections to this suture are, its track is very extensive, and therefore slow to heal, and that it puckers up the edges of the wound more than any other suture does.

The *quilled suture* has fallen rather undeservedly into disuse; its great merit is the uniform pressure made along the edges of the wound. It is made by carrying a suitable number of double ligatures through both lips of the wound, inserting a quill or a piece of gum-elastic bougie, and by tying the ends as firmly as are required, we bring the quills together, and thus press the edges of the wound against each other. The gauze and collodion, lead ribbon and collodion, are elegant for scalp wounds, where all forms of suture are inadmissible.

The *button suture* is one which has recently been brought into very great repute, by the brilliant success which has attended its use in cases of vesico-vaginal fistula, recto-vaginal fistula, cleft palate. The principle involved is the securing of the suture, which is invariably metallic, by clamping it over a metallic shield, fitted to the surface of the closed wound or fissure.

ANÆSTHESIA.—Nearly all surgical operations are greatly facilitated by placing the patient, or the part to be operated on, in a state of



insensibility. The surgeon is not embarrassed by cries, complaints or struggles. The patient escapes not only the pain, but the shock.

Anæsthesia is either general or local, according as it is made to affect the entire system of the patient or only a part of it.

GENERAL ANÆSTHESIA.—All the class of narcotics, as belladonna, opium, &c., have the power of dulling pain, but they fail to overcome it; their action is slow, prolonged, and in most cases, hurtful. Alcoholic intoxication renders the patient insensible to pain, but is a most pernicious agent.

*Sulphuric ether* and *chloroform* in the form of vapors, administered by inhalation, are the most valuable anæsthetics; ether is chiefly employed, although a combination as follows is a most excellent formula for the purpose.

R $\acute{y}$ .—Alcohol, one part;  
Chloroform, two parts;  
Ether, three parts.—*M*.

And keep shaking while using.

Chloroform is preferred by some, but it is an extremely dangerous anæsthetic, especially if the patient suffers from any organic disease of the heart, brain or lungs. There is always greater risk attending the use of this agent than any other. The placing a piece of muslin over the patient's mouth, and dropping the chloroform, is a good mode of administering, quick and safe. Laughing gas has been used a good deal as an anæsthetic by the dental profession, but its effects are not permanent enough for any surgical proceeding. Various other agents might be mentioned, which have lately been brought forward, but so far as tested, have proved to be of insufficient value. Local anæsthesia may be produced in different ways. Cold has been successfully employed to render painless the removal of tumors, but it does not answer for deep-seated tissues. It is applied by means of the ordinary freezing mixture of pounded ice and salt. Electricity has been used in some cases to decided advantage.

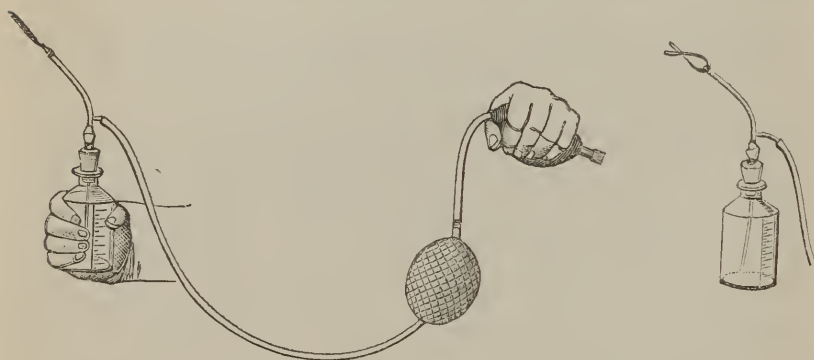
The best mode of local anæsthesia is unquestionably Richardson's ether spray; this instrument is calculated to become of essential use to all physicians, in the various minor, and even major operations. The principle of the method is as follows:

If ether be forced through a jet by mechanical force, along with a certain amount of air, such intense cold is produced as readily to freeze water exposed to it in a test tube.

The apparatus used consists of a graduated bottle for holding ether, through the perforated cork of which a double tube is inserted, one extremity of the inner part of which reaches to the bottom of the bottle. The air is forced into the bottle by means of a compressible india-rubber bellows, and forces the ether through the inner tube, and in fine spray from the terminal jet; a current of air is also forced through the outer tube and terminal jet, which is, of course, a little larger than, and surrounding the inner, or ether jet. When the spray thus produced is directed upon the skin, insensibility is produced within a minute, and after the division of the skin the ether begins to exert



on the nervous filaments the double action of cold and of etherization, so that the narcotism can be extended deeply to any desired extent. The spray directed upon a half-inch test-tube containing water, will produce a column of ice in two minutes at most. The spray may even be directed into the bladder, or into the uterus. It may readily be directed upon the gum previous to the extraction of a tooth, rendering the operation quite painless. It is likely to be useful, also, in a great number of minor operations, such as tying nævus, tying piles, incising carbuncles, opening abscesses and removing small tumors. In the extreme rapidity of the action of this deadening process lies its safety, suspending life without causing destruction of vitality. Many other fluids have been used instead of absolute ether, of specific gravity 0.720, such as methylic ether, amylene and kerosolene, but none answer so well; kerosolene is a very impure and unpleasant liquid. The peculiar hardness of the skin which occurs when the freezing mixture of ice and salt is applied, does not occur under the use of the ether spray.



According to the nature of the case, the surgeon may either produce a superficial anæsthesia or entire blanching of the part; to produce the latter, absolute ether must be used, and the spray directed in a brisk current at a distance of about an inch from the part; to induce the former, or superficial anæsthesia only, a mixture of ether and chloroform, in the proportions seven to one, or six to two, may be used. For opening an abscess, incising a small carbuncle, tying a nævus, or removing very small tumors, for applying nitric acid, and for operations of a similar kind, the mixture of ether and chloroform answers every requirement. In an operation for hernia, it would also be better to use the mixture, because the tissues would not be rendered hard, and the dissections could be carried on with delicacy. For teeth-extraction, the pure ether answers best; it acts rapidly and deeply, and there is no great accumulation of fluid in the mouth. By practice, the two degrees of action may be obtained by ether alone, by regulating the distance from which the spray is directed. By removing the jet three inches from the part, a moderate effect is produced.

It will probably be found that rhigolene, prepared from naphtha, will be the best means of freezing parts by Dr. Richardson's spray method. Common ether will boil at about  $96^{\circ}$ , while rhigolene boils at  $70^{\circ}$ . It will be both more effectual and much cheaper than ether.

**HYPODERMIC INJECTION.**—Subcutaneous injections of late years have attracted a great deal of attention from progressive physicians. Injection of medicinal agents into the cellular tissue, for the purpose of meeting certain indications in treatment, have been attended with great success, more especially among a class of diseases affecting the nervous system. It is an easy and rapid method of reaching the nerve centres and the cellular tissue, possesses most remarkable absorbing powers. The annexed wood-cut exhibits the instrument in use for that purpose. The nozzle of the syringe being unscrewed and inserted on one side of the cervical portion of the spine, for about an inch into the cellular tissue; the syringe is then filled and attached, and the remedy in solution thrown in. The instrument is then withdrawn. It must not be used over any bony projection.

It is specially adapted for the controlling all forms of spasmodic disease, subduing nervous irritation, and procuring most refreshing sleep. Its use then is indicated in spasms, tetanus, neuralgia, sciatica, malarial fever, &c., &c.

The remedy must be used in solution, as the acetate of morphia, atropia, &c., dissolved by means of acetic acid; quinine, by a few drops of dilute sulphuric acid, &c., &c.

The remedies should be exhibited in medium doses, as they act more powerfully, when thus employed, than when taken into the stomach.



## PART III.

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### DISEASES OF THE SKIN, CELLULAR TISSUE AND BONES.

#### THE SKIN.

The entire surface of the body is covered by skin, whose peculiar function is elimination of the waste matter and the protection of the delicate vessels of the body. On the surface we have the scarf skin, or epidermis; the mucus coat, or rete mucosum, and the true skin, or dermis or corium. The scarf skin, or epidermis, is the outside layer; its chief use is to defend the sensitive or true skin beneath it, and it thus fulfills an important function in the animal economy. Dr. A. Combe says that the epidermis "is at first secreted in a fluid state on the surface of the skin, in successive layers, the innermost and the most of the fluid portion of which constitutes the mucous coat, the outermost the cuticle or epidermis." E. Wilson describes the scarf skin or epidermis as "originally a transparent fluid exuded by the blood-vessels and distributed in a thin layer on the surface of the sensitive skin." The solid elements of this fluid gradually form innumerable minute granules, which collect in masses, and are nourished by the transparent part of the blood which flows through the numerous cutaneous vessels; a thin, transparent membrane invests these congregated granules, and are converted into cells, forming a beautiful mosaic. This layer is no sooner complete than a new layer begins to form, one gradually emerging and pushing the other to the surface; so with the cells, as soon as the one is matured another is speedily commenced and ready to fulfill the function of the one matured. As these successive changes or stages take place, the cells lose their fluid contents by evaporation, and are converted into dry, flattened scales, which form a dense covering, that yield with every muscular movement of the body, and is capable of resisting any outward influence that might prove injurious to the sensitive skin which it protects. The scarf or outside skin is thus being constantly renewed beneath to make up for the deficiency of the continued wear and tear of the surface; the scales or particles which are brought away by friction and washing are replaced, and a uniformity in the thickness of the skin is preserved. The principal ingredient in the composition of the skin is *albumen*, which is soluble in alkali; soap being alkaline, and is therefore the best detergent for purifying the skin; it intimately combines with the oleaginous fluid that bedews the skin, and aids in the removal of effete

matter. The scarf skin is perforated with minute apertures, through which perspiration flows; the oil glands keep the skin soft, and impart to it a balmy feel—prevents it from absorbing deleterious matter, and affords nourishment to the hair tubes which cover the body. In passing we may remark, that the nails are only another modification of the cuticle, thickened, hardened, and well adapted to their peculiar function in protecting the parts they cover. The nails are void of nerves and blood-vessels; not so with the skin beneath them, which is peculiarly sensitive, remarkably fine, and most exquisitely adapted for the organs of touch.

The color of the Caucasian skin depends on the energy of its action. We see examples of this in persons who habituate themselves to the use of the bath; they, as a general thing, exhibit a brightness of complexion and vigor of skin which is seldom seen in individuals who seldom resorted to this invaluable hygienic process. We see examples of this in countries where there is excessive heat or light, the skin being unduly excited by their influence becomes deeper in color; again, in cold countries the action of the skin is lessened, and its excretory functions are performed by the lungs, liver and kidneys—its color, as a natural consequence, is pale and very light. The force of the above observations may be recognized, on a small scale, in the complexions of individuals in summer and winter; the light and warmth of the sun in the former season darkens the fairest skins, which are again restored to their original fairness when the scarf skin has worn away, and when the season approaches when the sun's rays are diminished in intensity. This is but a general law of nature. We see it exhibited, clearly demonstrated to us, in the hues of flowers; those which blossom in the spring are pale, almost colorless, while the summer and autumn flowers are of a bright color.

The sensitive skin, or dermis, is the innermost layer, and is very different from the other layers, both in structure and functions, being very sensitive, and a good defense to the inner parts of the body. It is of considerable thickness; the upper portion consists of nerves and vessels traversing and ramifying over every part of the surface of the body. An eminent writer remarks "that it is a dense, firm and resistant tissue, possessed of great extensibility and elasticity, and of a color more or less red, in proportion to the quantity of blood which circulates in it. Its internal surface is united to the cellular tissue in which the fat is deposited, and presents a vast number of cells or cavities. Through the instrumentality of the true skin the waste matter is exhaled from the system, and passes out by the perspiratory pores; it is a joint agent in regulating the temperature of the body; it acts as an absorbent, and is the seat of sensation or touch. Its thickness, and the peculiar construction of the middle strata, renders it the effective protector of the parts beneath. As an exhalent the skin exercises great influence over the health of the body.

In the human system there is perfect harmony of action, a harmonious system of decay and renovation; and any derangement which disturbs this equilibrium, is a source of disease. Keeping the skin in a clogged or uncleaned state for a time, must of necessity engender



a tendency to imperfect health. If the skin, through non-attention to cleanliness, baths, exercise, pure air, &c., be incapacitated for performing its share of the excretory work, the other excretory organs have got its work to perform.

That strict attention to daily ablution or bathing is necessary for a fine, healthy, vigorous skin, as well as general health in its perfect sense, is a truth palpable to all. When we consider the quantity of waste matter continually carried to the surface of the skin, which, if not removed, will inevitably impede its function. When we take into account that in the beautiful mechanism of the skin there are in every square inch of its surface, 3,500 perspiratory tubes or pores, each of these pores being the aperture of a little tube about a quarter of an inch long, it follows that in a square inch of skin on the palm of the hand, there exists a length of tube equal to 882 inches, or  $73\frac{1}{2}$  feet. Surely such an amount of drainage as 73 feet in every square inch of skin, is something wonderful, and the thought naturally occurs, what if this drainage were obstructed by any cause. Could any one need a stronger reason, or a more conclusive argument for enforcing the necessity of daily attention to the skin.

But there are other weighty reasons for great attention to thorough ablution and friction. The waste matter destructive to life, requires to be cleared away, the scales from the scarf skin (if not cleansed) instead of falling away, will be kept in constant contact with the surface of the body, and adhering to it, mixes with the secretions of the skin, forming an oleaginous coating which is detrimental to health, and a barrier to the development of a fine skin and perfect health. For we must ever bear in mind that there exists throughout the great human fabric, *man*, a complete and perfect sympathy between parts of a like construction, so that although the exposed parts of the body be regularly and perfectly cleansed, still if the unexposed have not been subjected to as thorough cleansing, the good effects need not be anticipated.

In order to have a fine skin, perfect in function, a good complexion, cleanliness is indispensable—cleanliness over all the body, in clothing, in furniture as well as the air, with which an individual is surrounded. If there is not cleanliness in everything, the result will be injurious in various ways. If the skin is not daily cleansed, the perspiratory pores will be obstructed, their functions retarded, and some other organ will have their work to perform, which organ will be overworked, and will thus become weak and diseased. If the skin is not daily cleansed, it will be subjected to irritation, both mechanically and chemically, producing eruptions; while the saline particles detained on its surface by affinity for moisture, will keep it damp and cold, and thus tend to engender diseases by the effect of cold on the system. This accumulation of waste matter on the surface of the skin, may form a medium for propagating disease. A medium for detaining noxious vapors which are absorbed and produce injurious consequences.

From the above, then, it will readily be perceived that not only must we exercise thorough hygiene, daily bathing, as a means of pro-

moting perfect health, but also as a means in the prevention of disease.

The great remedy, then, we would recommend, is *water*—*water*, grateful in its application—*water*, the natural purifier; but water alone will not remove the waste matter, which is of an oleaginous nature, so, therefore, we must call in the aid of alkalis. Soap, from its alkaline properties, assimilates readily with the oleaginous ingredient which exudes from the skin, and is an invaluable agent in removing all impurities from its surface. Some persons employ wash-powders instead of soap; these are not merely useless for the purpose they are employed, but they are also highly deleterious, for being rubbed into the skin, they necessarily obstruct the mouths of the vessels, and the finer particles remain in the crevices of the skin, and give to it a fine finished marble appearance. The excuse offered for the use of these deleterious washes and cosmetics, is that soap irritates; but this is decidedly erroneous, palpably false idea. If the body be healthy, no irritation of the skin will follow the use of soap. In addition to the use of soap, I have prescribed the following with most excellent results—it is alkaline and detergent:

Ry.—Borax, gr. xx;  
Glycerine, ʒi;  
Aqua rosæ, ʒii;  
Otto rosæ, gr. x.—*M.*

Apply with a piece of fine leather.

We may recapitulate: the scarf skin is composed of a number of layers or cells, gradually flattened towards the surface, until on the outside it forms a hard compact mass. Whenever any part of the body is washed, all the outside scales or cells, with any impurity which may adhere, are removed or rubbed away, and thus the used effete matter, the hardened portions, &c., being thus removed, the skin is kept soft, healthy and beautiful; besides the removal of this waste matter, it aids the body in the maintenance of health, and if we have good health we will realize the pleasure of our existence, we will recognize it as the clear blue sky of the soul on which every star of talent will shine more clearly, and the sun of genius encounter no vapors in its passage. Health is the most exquisite beauty of a fine face—a redeeming grace in a homely one. It is like the green in the landscape—harmonizes with every complexion—mellows the radiance of the bright, and softens the hues of the dark.

## DISEASES OF THE SKIN.

Medical science has made rapid strides in the treatment of cutaneous diseases. In treating of this subject, we believe that the following arrangement is the clearest, most simple of any that has been proposed.

The classes are as follows:

ORDER 1.—*Erythematous eruptions*.—Erythema; roseola; urticaria.

ORDER 2.—*Hemorrhagic*.—Purpura; scurvy.

ORDER 3.—*Vesicular*.—Sudamina ; herpes ; eczema.

ORDER 4.—*Bulle*.—Pemphigus ; rupia.

ORDER 5.—*Pustulæ*.—Ecthyma ; impetigo.

ORDER 6.—*Parasitia*.—Tinea, tonsuraus ; tinea favosa ; tinea decalvans ; tinea sycosis ; plica polonica ; chloasma ; scabies.

ORDER 7.—*Papulæ*.—Lichen ; prurigo.

ORDER 8.—*Squamæ*.—Lepra ; psoriasis ; pityriasis ; ichthyosis.

ORDER 9.—*Tubercula*.—Elephantiasis ; molluscum ; acne ; lupus ; frambæsia ; keloid.

ORDER 10.—*Maculeæ*.—Under this head may be classed all changes of color of the skin.

Most of the common affections of the skin are very irritating and unsightly, and are merely manifestations of a constitutional disorder, consequently constitutional remedies, as well as local remedies, are important in treatment.

Generally speaking, our object must be to eliminate from the system the morbid matter upon which the eruption depends, and this is best done by *purgatives*, *diaphoretics*, and *diuretics* ; and by *alteratives* to alter or change, or modify the constitutional state which led to the formation of the poison, and so restore the healthy condition of the system ; a proceeding which is best affected by the use of the mineral acids, alkalies, iodine, phosphorus, iron, quinine, gold, bitter tonics. The local remedies are baths, lotions, ointments. The diet in all cases should be nourishing, and sufficient—avoiding salt meats, indigestible fruits, acids, pastry, sugar. The patient should bathe daily in an alkaline bath.

#### ORDER I.—EXANTHEMATA.

The exanthemata consist of variously formed superficial reddish patches, varying in intensity and size, disappearing under pressure and terminating in resolution or desquamation. They are often complicated with gastro-intestinal, pulmonary, or cerebral affections.

1. **ERYTHEMA**.—This is a non-contagious affection ; characterized by slight superficial red patches, of variable form and extent, most frequently appearing on the face, chest and extremities. Its duration varies from one to two weeks ; it is seldom preceded by febrile symptoms ; it causes but slight heat, and no pain, and terminates by slight exfoliation of the epidermis ; prognosis always favorable.

*Treatment*.—Any derangement of the digestive, urinary, or uterine functions which may be present, should be rectified. Then put the patient upon aconite and belladonna, the vapor bath should be used, followed with alkaline sponging ; in some cases an emetic, unlocking the secretions and following with tonics, as cinchona, irisin, nitromuriatic acid, &c.

2. **ROSEOLA**.—This disease is properly known as rose rash, a non-contagious inflammation of the skin ; characterized by transient patches of redness, of small size and irregular form, distributed over more or less of the surface of the body. The eruption, at first brightly red, gradually subsides into a deep roseate hue, and slowly disappears.

It is accompanied with slight fever, and generally lasts from one to seven days. It is peculiar to children, although women of an irritable system, with irregular uterine function, are liable to be attacked with it.

*Treatment.*—This is simple, consisting in warm baths, frequent sponging with the alkaline wash, exhibiting aconite and aselepin, following with mixed alteratives and tonics.

3. **URTICARIA.**—Nettle-rash is a transient, non-contagious, exanthematous eruption, characterized by long prominent patches, of irregular shape, of uncertain duration, and accompanied by intense heat, a burning and tingling in the affected parts, and great itching.

It is caused by certain derangements of the digestive organs, arising from the use of certain articles of food. It is often an attendant on uterine irritation, mental anxiety, fatigue, rheumatism, dentition.

*Treatment.*—Give an emetic of the C. tincture of lobelia, follow with a cathartic, bath, or sponge with the alkaline wash; give aconite, and the C. tincture serpentaria, or the C. tincture of corydalis, with a solution of the acetate of potash. If it assume a chronic form, still laxative alkalies, alkaline baths, will be the chief remedies.

#### ORDER II.—HEMORRHAGIA.

1. **PURPURA.**—This disease arises from a morbid condition of the blood,—that fluid being deficient in fibrinous elements, with a consequent lack of tone in all the tissues. Hence extravasation of blood from inherent weakness, pressure, or the force of the circulation.

*Symptoms.*—Spots or patches being red, purple, livid or reddish brown, resembling bruises, ecchymosis; persistent. Pressure does not efface. Debility is the type; depression, hectic, faintness, prostration. It cannot be confounded with scurvy, as in this we have a spongy state of the gums.

*Treatment.*—As this is essentially a disease of debility, the best blood-manufacturing food,—beef, eggs, soup; give the alt. stillingia, glycerine; alternate with nitro-muriatic acid, pyrophosphate of iron, sulphate cinchonine. Bathing with water, medicated with nitro-muriatic acid, is good; so is cod-liver oil, cinchona; and by some, turpentine is highly esteemed.

2. **SCURVY.**—This disease is usually caused by being deprived of vegetable diet. The blood is deficient in its alkaline elements; sallow, dusky countenance; swollen, spongy, livid-colored gums, bleeding on the slightest touch; teeth loose, breath offensive, great debility as the disease advances, dyspnoea, gums sloughing, hemorrhages from the mouth, nose, stomach, intestines; ecchymosis, or effusions of blood beneath the skin, especially the lower extremities, which look like bruises. Legs swell; the skin is dry, rough; urine scanty, spontaneous salivation, constipation and general exhaustion.

*Treatment.*—As the blood is deficient in its alkaline properties, the sulphate of soda, or chlorate of potassa, or phosphate of potash are indicated; then vegetables which possess antiscorbutic qualities, as oranges, lemons, potatoes, vegetables, mineral tonics.



## ORDER III.—VESICULÆ.

A vesicle is a slight elevation of the epidermis, containing a serous fluid, generally transparent, but occasionally opaque or sero-purulent. The fluid may be absorbed, or it may be effused upon the surface, causing excoriations and incrustations. Vesicular eruptions sometimes give rise to constitutional disturbance. In appearance they look as if drops of water had been scattered over the surface of the skin; they appear upon any part of the body, and are sometimes obstinate and troublesome to cure. In this order we find three affections: sudamina, herpes and eczema.

1. SUDAMINA.—During the progress of acute and chronic diseases, attended with sweating, crops of small transparent vesicles make their appearance, as in acute rheumatism, typhoid fever, usually on the trunk and extremities. They do not require special treatment.

2. HERPES.—Herpes, or tetter, is a transient, non-contagious affection, consisting of clusters of vesicles upon inflamed patches, of irregular size and form. It usually runs a definite course, rarely continuing for more than two or three weeks; it is seldom severe, never accompanied by any constitutional symptoms. A singular species of this disease is herpes zoster, or shingles, in which the inflamed patches, with their clustered vesicles, are arranged in the form of a band, encircling half the circumference of the body; usually the right side.

*Treatment.*—Gentle laxatives, as juglandin, warm baths, a good, but unstimulating diet. The local irritation may be relieved by a lotion of lime-water, or the zinc ointment, or a lotion of bi-carbonate of soda, or acetate of lead, or glycerine and ehlorate of potassa, or borax, morphia and glycerine.

3. ECZEMA.—Eczema, humid tetter, or running scall, is a disease of a non-contagious character, consisting of an eruption of small vesicles on various parts of the skin, closely crowded together, often running into each other, so as to form, on being ruptured, superficial moist exoriations. The heat, and inflammation of the affected part, the irritation produced by the scabs or crusts, the pain of the raw surface, tend to produce considerable constitutional disturbance. The most noted varieties are:

*Eczema infantile*, commonly found in children during dentition, generally the result of mal-assimilation and faulty secretion of milk on the part of the mother. If it once attack an infant, it gives rise to a most troublesome train of symptoms and complications. *Eczema* simple, when the eruption consists of minute vesicles on different parts of the skin, without inflammation. *Eczema rubrum*, when the skin is inflamed, and there is heat and swelling. *Eczema impetiginodes* is a severe form of *eczema rubrum*. *Eczema solare* when arising from great heat. *Eczema mercuriale* when the result of mercury. During any form of the disease, the general health becomes affected, intense itching and burning heat of skin, and the sufferer becomes pale, weak, anæmic and emaciated. In strumous patients the whole body may become covered with the eruptions; the excoriations are most irritating and the discharge offensive.

*Treatment.*—There are *three* indications to be fulfilled in the treatment of eczema, viz: elimination; the relief of the local distress; and the restoration of the impaired vital force.

To fulfill the first indication, if not contra-indicated, an emetic is good for the purpose of stimulating the liver and obtaining a perfect clearance of the stomach and bowels, then follow with some decided alterative, as irisin, rumin, stillingia, phytolacca or gold. As local remedies, a solution of the bi-carbonate of soda, consisting of ʒss. of the soda dissolved in a pint of water, covering over with oiled silk or gutta-percha sheeting; or the benzoated oxide of zinc ointment; or a solution of phenol sodique.

In nearly all cases the disease is due to mal-assimilation; this must be rectified, the blood purified and restored to its normal condition, and our best agents for effecting this are those invaluable alteratives, stillingia alt. in glycerine; phosphoric acid in glycerine; gold; muriate of platinum. Alkalies are useful, as the sulphites; acetate of potash, given with colchicum; corydalis, or an infusion of alnus, rumex, Jeffersonia, &c., cod-liver oil and iron, cinchona.

The general treatment must consist in the use of warm or tepid baths, thorough hygiene, anodynes, fresh air; the diet should be wholesome and nutritious; milk and brandy, beef tea, &c.

#### ORDER IV.—BULLÆ.

BULLÆ differs from vesiculæ merely in being larger; they consist of round superficial tumors, caused by effusion of serum beneath the epidermis; the vesicles or bladders bursting after a few days, while their contents form thickish crusts. Pemphigus and rupia are the two eruptions which are classed under this head.

1. PEMPHIGUS.—This affection is characterized by the appearance of large bullæ, two or three inches in diameter, upon one or more regions of the body. Before the appearance of the eruption, slight indisposition, fever, itching of the skin; small red circular patches then form, gradually increase in extent, and become covered with bullæ, which either fade away on attaining their full size, or burst, and are replaced by thin brownish-colored incrustations. Its duration is from one to three weeks, although it may last for months.

The class of patients subject to it are the filthy, squalid inhabitants of ill-ventilated abodes. In children it is due to over-feeding, teething, gastric or intestinal irritation.

*Treatment.*—This disease is sometimes rebellious, although it will yield to thorough hygiene, generous diet, warm clothing, and an alkaline wash; the alkaline wash, applied as in eczema, with good diet, will cure most cases, others again may require iodine, sulphur, nitro-muriatic acid.

2. RUPIA.—This disease is rarely seen but in individuals whose systems have been contaminated by the poison of syphilis, or by mercurial poisoning. It is characterized by the eruption of small flattened bullæ, containing at first serous fluid, which soon becomes purulent and sanguinolent, and concretes, or dries, into dark, black, rough

scabs. The margins of the surrounding skin inflame, more serum is poured out, and thus the incrustations increase in circumference and thickness until it resembles the shell of one of the mollusca. When the crusts fall off they leave circular ulcers, of various sizes, indisposed to heal, and which often only cicatrize after the lapse of many weeks. The lower extremities are mostly affected. Its duration varies from a few weeks to several months.

*Treatment.*—The medicines of most utility are *iodide potass*, *stillingia*, *rumin*, *gold*, *cinchona*, *dulcamara*, and a tonic course, generous diet, change of air. In the syphilitic form sulphur baths, and the following in tablespoonful doses, every three hours, will be successful:

R̄.—C. syr. stillingia;  
 Fluid ext. rumex;  
 Crispus;  
 Iris versicolor, āā ʒii;  
 Iodide potass, ʒss.—M.

#### ORDER V.—PUSTULE.

The pustular affections of the skin are characterized by the formation, between the cuticle and cutis vera, of small tumors containing purulent fluid, called pustules. The pustules are sometimes scattered irregularly, sometimes united into clusters; they are succeeded by scabs, and frequently by permanent cicatrices. The diseases of this class are *ecthyma* and *impetigo*.

1. *ECTHYMA*.—*Ecthyma* is an acute inflammation of the skin; characterized by large, round, prominent pustules, occurring upon any part of the body. The pustules are usually distinct, seated upon a hard inflamed base, and terminate in thick dark-colored scabs. The latter leave superficial ulcers, followed by cicatrices. Young persons are most obnoxious to it, especially in spring and fall. The eruption may be partial or general, and may continue troublesome for weeks.

The disease originates from a morbid condition of the skin, generally depending upon some constitutional defect. *Ecthyma* has been divided into several varieties, on account of some trifling and unimportant modifications which the eruption presents, from peculiarities of age, constitution, disease, and habits of life. The most common of these varieties are:

*Ecthyma vulgare*.—Consisting of a partial eruption of small hard pustules, on the neck, shoulders, or extremities. They are chiefly seen in young persons whose health has been impaired.

*Ecthyma luridum*, with pustules, larger, more diffused, fixed upon a hard elevated base of a peculiar dark red color.

*Ecthyma infantile*, occurring in infants of a delicate or scrofulous constitution.

*Ecthyma cachecticum*, peculiar to individuals who are suffering from a venereal, scrofulous, or psoric taint.

*Treatment.*—*Ecthyma* in all its forms is best treated by the alkaline wash.

R<sub>y</sub>.—Carbonate of soda, ℥ii;  
Water, 0:—*M*.

Keep the affected part constantly moist, alkalies applied from time to time only irritate, but employed continuously are soothing, as cicatrization progresses the benzoated oxide of zinc ointment.

The patient should be put upon a rigid alterative course, stillingia, nitro-muriatic acid, a generous diet, tonics.

2. **IMPETIGO.**—Impetigo, or running tetter, is a severe not contagious inflammation of the skin; characterized by an eruption of small hemispherical or flattened pustules, in clusters, and forming thick, rough, yellow scabs, or incrustations. From beneath these incrustations, a discharge takes place; the crusts become thicker and larger; and they fall off, leaving a raw surface. The mode of distribution caused a division of the disease in several varieties.

*Treatment.*—This affection in all its various forms is best treated locally by the constant application of the alkaline wash, during the time constantly kept moist, and the benzoated oxide of zinc ointment diluted with glycerine. Olive oil and lime-water is also an excellent, soothing dressing.

Elder ointment; a decoction of phytolacca; a lotion of oxalic acid, carbolic acid or creosote in glycerine; gutta percha in chloroform, hydrocyanic acid lotion, vapor baths are always beneficial.

The constitutional treatment is all important, the secretions should be stimulated, the diet improved, and the following remedies will meet the indications of all the various forms, sulphur, iodine, stillingia, rumin, irisin, gold, phytolacin, belladonna, lycopodin, &c.

#### ORDER VI.—PARASITICI.

This order may very appropriately be divided into two groups; according as the parasite belongs to the vegetable or animal kingdom. The cutaneous affections depending on a parasitic plant are—tinea tonsurans, tinea favosa, tinea decalvans, tinea sycosis, and chloasma; while the disease produced by a parasitic insect is scabies, all are contagious.

1. **TINEA TONSURANS.**—This is a chronic contagious disease, caused by a parasite plant, common name ringworm. It may occur in any part of the body, but the head is the most frequent source of the disease.

2. **TINEA FAVOSA.**—This like the above, is a parasite disease, commonly affecting the scalp, in the form of small cup-shaped, dry, bright yellow crusts; each containing a hair in its centre, and sometimes resembling a piece of honey comb. The scabs increase in size and are highly contagious. This cryptogamic parasite causes yellow, distinct pustules, which are very itchy and corrosive.

3. **TINEA DECALVANS** is easily recognized by the perfectly smooth bald patches which result from the hair falling off. The hair falls off one or more circular or oval spots; leaving perfectly smooth, bald patches, which vary in size.



4. *TINEA SYCOSIS*.—This is also another species, characterized by inflammation of the hair follicles, causing successive eruptions of small acuminated pustules, occurring most frequently on the chin, and other parts occupied by the beard; it seldom occurs on the scalp. It is caused by a cryptogamic parasite.

5. *CHLOASMA*.—Chloasma, or liver spot, makes its appearance generally on the front of the chest, or abdomen, in the form of small spots of a dull reddish color, which gradually increase in size, and assume a yellow tint. It is highly contagious, and is caused by a cryptogamic plant.

*Treatment*.—The treatment is the same in all the varieties. First of all, cleanliness is of the greatest importance; then separation of the scabs or incrustations by poultices, the improvement of the general health, and to insure a perfect cure, destruction of the spores of the parasitic plant. For this purpose, the following lotions and ointments are highly esteemed. The oil of cade; lime and carbonate of soda, each one part, lard, thirty parts; sulphate of copper, one part; alum, three parts, lard, thirty parts; the sulphuric acid lotion; lotion of the sulphite soda; pitch ointment; phenol sodique; creosote ointment; iodide sulphur, &c., &c.

In all cases the local treatment should be combined with constitutional measures calculated to produce a change, alteratives, warm clothing, good diet, tonics, iron, cinchona.

6. *SCABIES*.—Scabies, psora, or the itch, is a contagious disease—contagious in the sense which implies actual contact—a vesicular eruption, appearing with watery heads, attended with great itching, the irritation being increased by warmth. This affection may attack every part of the body, but it attacks by preference, the finer portions of the skin, inside of the fingers, arms, legs, &c.

The cause of the disease is an insect called the *acarus scabiei*, which is found about a line from, but not in each vesicle.

*TREATMENT*.—This affection is readily cured by using any of the following remedies: sulphur ointment; inunction with lard; sponging with benzine; anointing with oil of bergamot; or a liquid sulphuret of lime, or an alcoholic solution of stavesacre, or a lotion of sulphate of copper, or iodide of potass; a lotion of chloride of lime; phenol sodique; an ointment prepared by boiling some oil with an excess of lye, composed chiefly of caustic potash and crude carbonate. This is employed by saturating a coarse towel with it and applying, rubbing every part. Hebra's ointment, which is so highly esteemed, is as follows:

R̄.—Sulphur, oil of cade, āā ʒii;  
Alkaline soap, ʒv.—M.

The patient's apparel as well as the bed-clothes, should be thoroughly cleansed.

If the disease has lasted long, and the constitution sympathises, a course of alteratives and tonics should be resorted to, and to meet special indications, the following remedies will be found appropriate: rumin, muriate of ammonia, juglandin and iodine.

## ORDER VII.—PAPULÆ.

In the treatment of all diseases of the skin, we must ever regard it as an external lung, an ærating mechanism spread out over the entire surface of the body. Both lungs and skin abstract oxygen from the atmosphere, which they replace by carbonic acid and watery vapor. A healthy cuticle must be freely permeable by elastic fluids. The skin is profusely perforated by valvular orifices, openings of the sweat ducts—and is the grand drainage pipe of the body—a healthy skin is important to perfect health, for if it be obstructed by disease, more labor is thrown upon the kidneys and lungs, which are apt to be over-worked, and become diseased. The skin is also a great decarbonizing organ, and if its function is impaired, it throws all the work of decarbonization on the liver, hence disease of that organ—carbon, also, is retained in the blood, which acts as a poison on the great nerve centres, hence the propriety of appreciating skin diseases in all their varied ramifications.

Papulæ or pimple, is a small, solid, acuminate elevation of the cuticle, resembling an enlarged papillæ of the skin, generally terminating in resolution, desquamation or ulceration of its summit. Papular eruptions are usually preceded by itching, rarely by fever, form slowly; are not contagious; appear on any part of the body; vary in their duration from a few weeks to as many months. Lichen and prurigo are the diseases of this class.

1. LICHEN.—This is a papular affection, readily recognized by the minute, hard, red elevations of the skin, together with the most annoying and intolerable pruritus. There are several forms of the disease.

The eruption which is often seen in infants during the period of dentition, and known as *the red gum, or tooth rash*, is a form of lichen. In these cases the color of the papillæ may be red or white. Sometimes the eruption appears in the palms of the hands, the arms and legs, when it receives the vulgar appellation of *salt rheum*.

The eruption now and then comes out in a mild form upon the trunk or extremities, attended with heat, and troublesome itching on becoming heated; this variety is known under the designation of prickly heat.

The *lichen agrius*, in which the papulæ are more inflamed, and developed on an erythematous surface, which appears hot and painfully distended. In a short time the inflammation diminishes, and the papulæ become covered with a furfuraceous desquamation; or then points are scratched off, the skin around them becomes fissured into deep and painful cracks, and a sero-purulent fluid exudes, forming thin, scaly crusts. The itching, tingling, and smarting, is often very intense; there is usually fever, nausea, headache, rigors, and other symptoms of constitutional disturbance; and though in mild cases the symptoms may subside, and the eruption die away in about fourteen days, yet in severe varieties the disease is frequently prolonged for months.

*Causes.*—Irritation of the stomach and intestines from errors in diet, worms, and teething. Protracted exposure to heat, &c.

*Treatment.*—Tepid alkaline baths twice daily, mild laxatives, as juglandin, irisin, and drinks of water medicated with nitro-muriatic acid, or a decoction of the vegetable alteratives.

The local irritation is quickly relieved by a lotion of lead water and hydrocyanic acid. Hydrochlorate of ammonia and vinegar.

**PRURIGO.**—Prurigo is believed by some authors to be a severe form of lichen. The papillæ are, however, larger, more isolated and distinct, and scattered over larger surfaces than those of that affection. The eruption is sometimes of a red or pinkish color, at other times white, like the surrounding skin, and attended with the most intense itching and stinging. The disease appears in all parts of the body.

Prurigo is often a chronic affection, lasting for months and years, and causing great discomfort and even misery. Patients afflicted with it scratch and tear themselves till the blood flows, their sufferings being aggravated by warmth.

Three varieties embrace the chief ones. The first is *prurigo mitis*, mildest in form; the second, *prurigo formicans*, where the itching is combined with a sensation like the creeping of ants, or the stinging of insects; and the third, *prurigo senilis*, occurs in old persons, and is the most obstinate.

The itching arising from prurigo must not be confounded with that caused by insects. The human body is infested with four kinds of lice, namely: the *clothes louse*, *head louse*—which lives in the hair—the *body louse*, which is larger and flatter than the head louse, and adheres to the smooth parts of the body, and the *crab louse*, which infests the hair of the pubes, axilla and eye-brows. They are all destroyed by an ointment of phytolacin, or a strong infusion of lobelia washed over the parts.

*Treatment.*—In curing prurigo, alkaline, iodine, sulphur, conium, creosote, or even plain water baths daily of a temperature of about 70°, Fahr. The local applications of most utility, and which give the speediest relief, are vinegar, lime-water, C. tincture creosote, a lotion of prussic acid, tar ointment, carbolic acid, and glycerine, or what is most excellent, is sponging the patient with the following before retiring:

Ry.—Ter chloride of carbon, ℥iv;  
Elder-flower water, Oj.—M. †

Equal parts of sulphate of zinc and alum added to water and used as a sponge bath.

The general treatment must consist in the use of light, nutritious food, thorough hygiene, the avoidance of stimulating food or drink, and the employment of agents calculated to act on the secretions. C. syr. stillingia, nitro-muriatic acid, quinine, iron, nux vomica, cinchona, corydalis.

#### ORDER VIII.—SQUAMÆ.

The term squamæ is applied to the scales of degenerated, thickened, dry epidermis, which cover minute papular elevations of the skin; these scales or particles of scurf being readily detached, though they

are reproduced by successive desquamations for a long time. The scales or scurf are the result of a morbid secretion of the epidermis. Their formation gives rise to but slight constitutional disturbance, and to more local heat and itching; while none of the squamous diseases are contagious, though they are very chronic in their duration. Lepra, pityriasis, and ichthyosis are the most common diseases included under this head.

LEPRA.—There are several forms of lepra: *lepra alphoides*, when the patches are small, white, and of long standing; *lepra syphilitic*, when the result of syphilis;—then the patches are copper-colored: and *lepra vulgaris*, which is the most common variety. This is a non-contagious, chronic eruption, consisting of red, scaly, circular patches, of various sizes, scattered over different parts of the body, but more frequently in the vicinity of the joints, especially near the knee and elbow. By degrees the patches increase in size and number, and extend along the extremities to the trunk.

*Causes.*—Some believe the disease to be hereditary; but it would seem to be caused most directly by agents that depress the vital forces, as improper food, insufficient ventilation and clothing, filth, deteriorated blood.

*Treatment.*—In this affection of the skin, we have an excessively depraved or broken down condition of the blood; consequently the diet should be such as contains all the elements of blood; and all acids or articles of diet capable of creating or becoming acid, must be positively prohibited. Vapor baths of iodine and sulphur, every two or three days, with the daily use of the alkaline bath, are excellent auxiliaries to the constitutional treatment.

Alkalies have wonderful efficacy here: such as the sulphite of soda or liquor potassa, in half-drachm or drachm doses, thrice daily, is often remarkably successful; or ten drop doses of Loguli's solution of iodine, alternated with one-thirtieth grain of the chloride of gold. These remedies should be persevered with, and alternated with the stillingia alt., irisin, dulcamara, &c. If the above fail, give acetate of potash in half drachm doses, thrice daily; *this acts by increasing the metamorphosis of tissue in the system, by which means all products of low vitality become decomposed, and eliminated from the system in the urine*; alternate this with phosphorus internally, dissolved in oil or ether, and then combined with glycerine. If this fail, try carbonate of ammonia, in doses of from five to ten grains, three times daily, in simple syrup, and alternate this with a decoction of the corydalis and iodide potass.

The best local applications consist in applying camphorate lard, to which phosphorus has been added,—say one ounce of the former to one or two grains of the latter; the oil of cade, in glycerine; the daily use of the alkaline wash. The allopath and homœopath depend chiefly on arsenic and bi-chloride of mercury in the treatment of lepra; arsenious acid and extract of piper nigrum being their favorite formulæ.

The best of diet, avoiding fruits and acids. The most thorough hygiene should be the rule.

PSORIASIS.—Psoriasis, or dry tetter, is a chronic, non-contagious



inflammation of the derma, characterized by the development of patches of various extent and form, slightly raised above the level of the skin. Psoriasis is closely allied to lepra in its appearance, causes and pathology; in *psoriasis*, the patches are irregular, not depressed in the centre: in *lepra*, they are circular, depressed in the centre, with elevated margins. The treatment does not essentially differ from lepra.

**PITYRIASIS.**—Pityriasis, or dandruff, is commonly confined to the hairy scalp, and displays itself in the form of a superficial, bran-like scurf, which is easily removed by a comb or brush, but which is speedily reproduced. It is due to a chronic inflammation of the skin, and is sometimes attended with redness and itching, and always characterized by the production of minute white scales. Besides the scalp, hairy parts are often the seat of the affection. The desquamation takes place copiously and incessantly. It sometimes gives rise to a good deal of annoyance and irritation, and may resist all treatment for years.

**Treatment.**—Various modes of treatment are successful; but in all cases an alterative course of remedies internally, should not be neglected, as *iodine*, *stillingia*, *nitro-muriatic acid*, *phosphorous*, *cinchona*, *muriate of gold*, &c. Locally, we have found the simple alkaline lotion good; better still, a lotion of the sesqui-carbonate ammonia, phosphorus rubbed up in some ointment, baths of an infusion of flaxseed; milk, glycerine, should not be overlooked; a lotion of water, acidulated with nitro-muriatic acid; a lotion of sulphuret of potash,  $\mathfrak{z}\text{i}$ ; water,  $\mathfrak{z}\text{iii}$ . Once a day. But the best formula that I have ever used, is the following:

R $\bar{y}$ .—Borax, gr. xv;  
Glycerine,  $\mathfrak{z}\text{i}$ ;  
Aqua Rosa,  $\mathfrak{z}\text{ii}$ ;  
Otto Rosea, gr. x.—*M*

Apply every night.

**ICHTHYOSIS.**—Ichthyosis, the fish-skin disease, is characterized by the development, upon one or more parts of the integuments, of thick, hard, dry, imbricated scales of a dirty gray color, resting upon an uninfamed surface, and unattended by heat, pain or itching. Ichthyosis is usually a congenital disease, and lasts during life.

**Treatment.**—In our efforts at cure there are three indications to be fulfilled: augment the action of the capillaries of the skin by the proper remedies; improve the secretions generally by a generous diet, vigorous exercise in the open air; and aid the action of these means by topical remedies to stimulate the skin, to assist the separation of the diseased papillæ. For the purpose of fulfilling these indications, a rigid alterative course, giving such remedies as yellow dock, phyto-lacca, dulcamara, stillingia, gold, &c.

Simple warm and alkaline baths are the only local remedies of any utility.

#### ORDER IX.—TUBERCULA.

The diseases belonging to this order—elephantiasis, moluscum,

acne, lupus, framboesia, and keloid—characterized by the formation of small, hard tumors or tubercles, more or less prominent, circumscribed in form, and persistent. The tumors may ulcerate at the summit, or they may terminate in suppuration. Tubercular diseases are slow in development, very chronic, peculiar to certain regions, their symptoms are characteristic—the general appearance and cachectic condition.

Lupus is the only form of the tubercula with which we are acquainted, and is best treated by those remedies useful in scrofula. [*See Lupus.*]

ELEPHANTIASIS.—These two varieties, elephantiasis græcorum and elephantiasis arabicum.

*Lepra Græcorum* is an hereditary and contagious disease, terrible in its character, generally incurable.

There are three forms: 1. The squamous or scaly; 2. The crustaceous, in which the skin is covered with crusts; 3. The tuberculous.

*Symptoms.*—Dusky red or livid tubercles of various sizes on the face, ears, extremities; thickened or corrugated state of the skin; diminution of its sensibility; falling of the hair, except that of the scalp; hoarse nasal or lost voice; ozæna—ulcers of the surface and extreme fetor.

ELEPHANTIASIS ARABICUM is characterized by greater swelling and induration of the skin and areolar and adipose tissue, producing marked deformity.

It frequently attacks the lower extremities, causing swelling so

great that the limb becomes double its natural size. There is hardness, severe pain, thickening, and an appearance resembling the leg of an elephant. This disease usually continues during life.

MOLLUSCUM.—This affection, called from the resembling of the tubercles forming it to the eminences growing on the bark of the maple tree. It consists of small tumors varying in size from a pea to a pigeon's egg, sometimes of a brown color, sometimes has a broad or narrow base. It is a rare disease, does not produce much inconvenience, generally remaining stationary during life.

ACNE.—This is a pustular affection, characterized by small pustules with deep red bases, generally appearing upon the nose, face, forehead and shoulders, first in the form of a thickening, redness, and induration of the integuments, from which continually proceed suppurating points or tubercles. The parts affected often acquire a depth of redness and a conspicuousness which is annoying to the patient. There are several varieties.

Acne simplex, acne indurata, and acne rosacea; the characteristic distinctions of which are indicated by their names.



Acne rosacea, or rosy drop, carbuncled face, attacks the nose, spreads to the cheek, are very protracted in their duration, and often leave indelible cicatrices. It is usually connected with some affection of the stomach or liver. It consists of small tubercles, which suppurate slowly, exhibiting a shining redness and an irregular, granulated appearance of the skin; pale in the morning, and becoming intensely red through excitement. The cuticle is gradually thickened, and its surface diversified by cutaneous veins, which become varicose and suppurate. Acne rosacea occurs late in life, and is often caused by the use of stimulating drinks.

ACNE PUNCTATA, or maggot pimple, a number of black points, surrounded by a very slightly elevated border or cuticle. It proceeds from converted sebaceous matter, accumulated in the follicular glands, and may be pressed out of these glands or their ducts.

ACNE SYPHILITIC, caused by the constitutional influence of secondary syphilis. It resembles the acne rosacea, but is easily recognized by its copper-colored tubercular base and areola.

*Treatment.*—In the treatment of the different varieties, regular secretions, skin, liver, kidneys. For this purpose give the patient every night a pill of the following:

R<sub>y</sub>.—Juglandin;  
Leptandrin;  
Euonymin, ãã gr. xx;  
Extract nux vomica, gr. iii.—*M*.

Ft. xx. pills.

This will operate specially on the portal system. Three times during the day, two grains of iodide potass. If that fail, the iodide of iron, or the acid solution of iron, in suitable doses. The constitutional treatment by the most positive alteratives, careful regulation of the diet, abstinence from wine and stimulating articles of food, baths, constitute the appropriate treatment.

Locally, various remedies are successful, as

R<sub>y</sub>.—Sulphur ointment, ʒi;  
Muriate ammonia, ʒss.—*M*.

Or an ointment of the iodide of sulphur; apply before retiring to bed.

An excellent lotion for sponging the affected part during the day is composed of the following:

R<sub>y</sub>.—Hyposulphite of soda, ʒii;  
Sulphate of alumina, ʒiss;  
Rose-water, ʒvii;  
Cologne-water, ʒss.—*M*.

The hydrochlorate or acetate of ammonia answers equally well.

FRAMBÆSIA—This disease is ushered in without any precursory symptoms, when suddenly a part of the skin about the face, scalp, axilla, or genital organs, is found covered with small spots of a dusky red color, which gradually become converted into large tubercles, isolated at their summits, but collected together at their bases, and bear-

ing a strong resemblance to raspberries in color and form. The tubercles are generally hard, covered with dry scales, and are sometimes inflamed. If the inflammation spreads, ulceration soon sets in, and a yellow sanious discharge results, which forms scabs around the tumors. The internal treatment should be the same as laid down for scrofula and tuberculosis; locally, the best remedies are painting the part with strong acetic acid, or pyroligneous acid, or a strong solution of carbolic acid. The internal treatment is chiefly to be depended on.

**KELOID.**—The most common appearance of this affection is small, flat, painful tumors, several inches in diameter, raised above the level of the skin—having irregular forms, with slight depressions in their centres, covered with wrinkled epidermis. Sometimes the excrescence is in vertical streaks, resembling leather, in every variety of shape and conceivable form; at other times the excrescence resembles the cicatrix left by a burn, which, though soft on the surface, communicates a sense of density and resistance on pressure. The disease slowly develops itself, sometimes ulcerates, and sometimes disappears spontaneously. It occurs on every part of the body. Treatment of any kind seems powerless over it.

#### ORDER X.—MACULEA.

Under this head may be classed all those changes of color of the skin from any cause.

**GENERAL REMARKS.**—In all cases of skin disease, after the vitiated secretions have been thoroughly rectified, an alterative and tonic treatment are imperatively demanded, as phosphorus, iron, cinchona, good diet, hygiene, positive and thorough. In nearly all cases, sedatives, both locally and internally, are indispensable to overcome excessive itching or irritation; indeed, I regard a judicious use of anodynes essential to the cure of all forms of disease. Baths, in all their endless variety, are useful in skin diseases; and the steady local bath, in the form of moist alkaline application in eczema, is of priceless power.

The natural baths and mineral springs of our country are undoubtedly beneficial in chronic cases.

### BURNS AND SCALDS.

The degree of heat that can be borne without experiencing inconvenience or injury, depends very much on the conducting power of the medium through which it is applied. The human body may be exposed to air of the temperature of  $212^{\circ}$  without injury, whereas, the contact of a solid or fluid of the same heat, would instantly cause burning. From habit, some parts of the body will tolerate a degree of heat that would be extremely painful to others.

Burns caused by heated liquids are generally diffused in their extent, equable in their severity, generally superficial, for the heat of boiling water is not sufficient to cause the death of the cutis, unless immersed in it for some time, although the effect may readily be



produced by soap or oil, or other liquids whose point of ebullition is higher.

Burns caused by some sudden and intense heat of short duration, as by the ignition of turpentine or gunpowder, or the inflammable gases, are more diffused, uniform and regular, than those occasioned by the contact of heated substances. After burns from the explosion of gunpowder, the injured parts are of a peculiar bluish-white. The irritation of these injuries is often aggravated by the numerous grains of gunpowder that escape combustion, and are propagated with such force as to stick into the skin. Authors have been in the habit of dividing burns into numerous varieties, some three, others four, and some six, for being explicit, we adopt the latter.

1st. In the first variety there is just a redness of skin where the degree of heat which has been applied is not intense, no sloughing, some erythema, and in a very few hours, at most in a few days, the effects will subside, the cuticle peel off, leaving no remains of injury in the part. It is very true that even this degree of heat may produce great injury, and even danger, where this is extensive, as it impedes the functions of the skin very much to the loss of the whole system—the pulse is quickened, the tongue red, the mucous membrane of the alimentary canal is excited.

2d. In this variety, the degree of heat has been greater, the redness is darker, the sloughing is more considerable, but what marks it more especially, is the formation of vesicles, which sometimes rise immediately after the application of heat, and in other instances within twenty-four hours afterwards, and contain a serous fluid.

3d. In this class the surface of the cutis suffers, and is more or less destroyed, the vesicles attending this injury contain turbid blood and serous fluid, it has a yellowish or light brownish discoloration. These parts are converted into eschars, from which the patient suffers no pain, unless pressure be applied, which produces suffering by affecting the living parts between the eschars.

4th. In this grade the whole surface of the cutis is destroyed, and more or less of the subcutaneous tissue is destroyed, and more or less of the cellular texture is injured, the discoloration of the eschars is of a deeper color. The eschars are stiffer than in the preceding classes, and are also more brittle, and the skin around them is puckered and wrinkled. Upon the separation of these eschars, ulcers, from which granulations are formed, and spread in great luxuriance; there is also a profuse discharge of pus.

5th. In this class the textures more deeply seated are involved, as the fascia and muscles, sometimes nerves and vessels not destroyed, are included. The eschars are thicker, cold, black and brittle; they are longer in separating, but when they do separate, then there is a very rapid discharge of pus, and rapid granulations. In consequence of muscles being involved, their action is impeded, and it often happens that the whole functions of a limb are suspended by a burn of this kind.

6th. In this variety, the limb itself is turned into a black, insensible mass, as sometimes happens in our large iron works, where the hot

metal comes in contact with the lower extremities. Often the foot, for example, is placed in the groove or gutter, where the hot metal runs, and is at once converted into an eschar, where it is at once annihilated.

**CONSTITUTIONAL SYMPTOMS.**—The constitutional symptoms of burns vary much, but they are usually divisible into two classes, those arising from the shock and irritation of the system, produced by the action of the heat, and those that come with the reaction that takes place, such consequence implying hectic disturbance and its usual attendants. A burn may be only superficial, and yet from the extent of its surface, be highly dangerous and perhaps fatal, from the shock experienced by the system. It may produce such depression of the circulation, that you can scarcely feel the beating of the arteries of the wrist, and the whole body may be in a state of utter prostration. Now, all the danger arising from the first and second variety of burns, is in the first stage, a fact worthy of remembrance, as it does not apply indiscriminately to the rest, and if the patient gets over the first stage, there is little danger to be apprehended from the rest; resolution will take place, and within twenty-four hours the danger will have passed away. Not so with burns of the third, fourth and fifth degree, involving the deeper textures; they are not at once attended with all that constitutional danger attending burns of the first and second degree; but in three or four days, when the process commences by which the eschars are separated from the living parts, a great degree of constitutional disturbance takes place. This process may take some time for its accomplishment, but it usually commences within three or four days after the injury, and this period is always one of great danger; in burns of this degree, this dangerous disturbance, the irritation from the injury, or, we should say, from the shock; the third period of danger is when suppuration is going on, and the great discharge tends to produce hectic.

**MORBID ANATOMY.**—Congestion and serous effusion on the surface and in the ventricles of the brain—the air cells of the lungs are loaded with a thin muco-serous fluid; also great visceral engorgements, sometimes peritonitis, perforation of the intestines, &c., &c., undoubtedly caused by the arrest of the exhalant function of the skin.

**TREATMENT.**—No class of injuries has been more subject to varied and opposite modes of treatment than burns. The frequency of such accidents and the empirical manner of their treatment have evidently distracted the opinions of the profession as to the correct treatment. From the conflicting theories and practices, the following would seem to be the chief points or indications to be observed.

That the first application should always be of a mild, stimulating character. After the first two or three days they should be soothing—slight astringents should be applied to hasten healing, and the part should throughout, be most carefully preserved or excluded from the atmospheric air. The local treatment of burns should then be either stimulating or cooling—sedative in its nature. The particular plan of treatment should be always adapted to the peculiar circumstances and stage of the injury. The good effects of all remedies are their

stimulating and soothing influences on the different nerves. It is always essential to soothe or allay pain as far as possible.

Rest and pain relieved—the secret of success. The sedative treatment while heat and pain exists is the best. Much, however, depends on the diathesis of the patient, as well as on the different stages or degrees of the accident. In the local treatment we may make our choice from a multitude of remedies. It might not be inappropriate to glance at a few briefly from the linimentum calcis of the old to the more favorite remedies of the new school.

The mucilage of slippery elm or slippery elm poultice, made of slippery elm and milk, and covered with olive or sweet oil. It should not be suffered to become dry—it must be frequently changed, and after the pain and inflammation are subdued, the black salve will readily complete the cure. This is an excellent mode of treatment, no other application bears any comparison with this.

Some old practitioners treat burns with such applications, as ice, flour, flour and lard, or cotton applied and allowed to remain until cleanliness or the patient's sensations dictate their removal. Lime-water and olive oil, oleaginous liniments, turpentine liniment, and the whole host of poultices, used until healthy pus begins to be secreted, and granulations form when mild astringent ointments should be used.

One great point in the local treatment of burns is the prevention of access of air, by keeping the parts well and thoroughly covered. For simple burns, the application of the black salve gives immediate relief. Soap is a favorite remedy of some—it has been found successful, its simplicity and its always being at hand, causes it to be very often adopted. It is most applicable to superficial burns, the benefit accruing to the patient is immediate and satisfactory; if early applied, vesication is prevented.

Equal parts of molasses and water, kept constantly applied, by pieces of muslin, is very serviceable in excluding atmospheric air, affording relief, expediting cicatrization, and in preventing the unsightly puckering and contraction which often follow. In inflammation caused by touching the skin with nitric acid, and other irritants, a solution of gum arabic will quickly allay it. This remedy, from its simplicity and accessibility, is worthy of more attention, as being very serviceable. If the skin is not destroyed, the parts are to be repeatedly smeared over with a solution, as often as one layer is dry, another is to be applied, but it acts merely by excluding the air and thereby checking inflammation of the skin. The utility of the nitrate of silver is much doubted as a remedy, the usual proportion used is ten grains of the nitrate to an ounce of water, applied by means of a camel's hair brush over every part, exhibiting the slightest appearance of inflammation, three times daily until the skin has become blackened. A solution of the sulphite and chloride of soda is strongly recommended, as an astringent and sedative it affords immediate relief to suffering—prevents an increase of inflammatory action, and dissipates this when it already exists. The strength of the solution must be regulated according to the irritation produced. This should be but slight and subsiding quickly. They act more efficiently when the



mucous substance of the skin is laid bare than through the epidermis. Creosote, carbolic acid, phenol sodique are very valuable in burns and scalds—they are usually made by applying them diluted with water on linen, they produce the most satisfactory results, soothing pain, and accelerating the subsequent progress of the cure. Flour, cotton and charcoal have been extensively applied, and in certain cases have been useful in covering and protecting effectually the exposed nerves. Collodion when applied to burns, promotes healing, and prevents suppuration. It may be used with great success where the head, neck, breast, face and hands are severely burned. It is applied to the skin by a hair pencil brush—when so applied, the pain, redness and swelling diminish—the patient quickly experiences no inconvenience except the tension occasioned by the firmly adherent pellicle. The inflammation completely subsides, recovery is rapid. Cold applications are grateful, and do good on the principle of excluding atmospheric air, but the pain arising from the air does not result from air as air, but on account of its coldness. Warm air soothes and is beneficial. It is from their effects in soothing the nervous irritability of the injured part, by preserving the nerves from feeling the variations of temperature in the currents of air, which act upon the surface, that the various applications are of such value. Cold water medicated with borax, equal parts of linseed oil and lime-water, or the carron mixture are good defensives.

Vinegar is highly esteemed, and is of great service, applied by means of linen rags. Anodyne remedies in the form of an ointment, like stramonium, are excellent. If any fungus granulations appear, sprinkling them with sanguinarin or permanganate of potash wash is usually sufficient. If induration or hardening takes place, then painting the wound with the oil of erigeron, or amber, or the application of mullen leaves, moistened with vinegar. If the burn becomes indolent, tedious in healing, the tincture of capsicum and bayberry should be resorted to, and over and above all, the elm poultice. An excellent plan of treating burns from scalding water: flour of slippery elm, chickweed, hot water, sufficient quantity to make it of the consistence of gruel, immersing pieces of linen or muslin, and applying and changing every two hours—no other covering or dressing.

CONSTITUTIONAL TREATMENT.—If there is an urgent degree of collapse, stimulants should be given; brandy, capsicum, xanthoxilin, and the general treatment of a patient suffering from prostration, care always being taken not to push the stimulants too far, lest congestion of the head or chest be produced, and, on the other hand, not to abandon them too soon, lest the collapse return. In extensive burns, constipation is common, and if this is removed by purgatives, we have a most troublesome diarrhœa occurring; if this is persistent, enemata of cold water act well. In nearly all cases of fatal burns, the mucous coats of the stomach and intestines are found to be highly congested. This should be borne in mind; we have congestion or injection of the internal viscera, from an abnormal quantity of fluid, in consequence of the arrest, to a greater or less extent, of so important a secretion as the skin. This state may be rectified by the



administration of diaphoretics, and diuretics, as *asclepin*, *aconite*, *C.* diaphoretic powder, with some form of saline diuretics. If nervous irritability prevail, *hyoscin*, *lupulin* and *scutellarin* should be given. Any appearance of inflammation in the head, chest, or abdomen, should be treated with the greatest promptness, by active, but mild cathartics, by counter-irritation and revulsives, and the administration of such remedies as *aconite*, *lobelia*, and *belladonna*; suppuration should be maintained, or arrested with a due regard to the internal organs.

During the symptomatic fever, the bowels should be regulated with the neutralizing cordial; *aconite*, *asclepin*, and the sudorific drops, for sedation. The great success in treatment depends on a judicious employment of constitutional, more especially eliminating diuretics, whilst the cutaneous function is impeded. When suppurative action has been established, the mode of treatment is not different from a granulating sore.

The black salve excels all other applications—it stands pre-eminent. Glycerine, with a small portion of the oxide of zinc ointment, is very valuable. During the process of cicatrization, proper means ought to be adopted to prevent, as far as possible, any unnatural adhesions of the affected tissues, and to counteract any deformity that threatens, from the contraction and hypertrophy of the cicatrix. The patient's strength must be maintained by all means; he must have a generous diet; essence of beef, beef tea, chops, white of egg, cream and brandy. Nothing tends so much to aid a speedy recovery as a good blood-elaborating diet.

### EFFECTS OF COLD.

A high temperature is destructive to the living tissues, and so is one that is too low. Cold, when applied to a part, to the extent of diminishing its temperature below a healthy standard, acts as a sedative or depressant. It has been known from the earliest times, that cold is capable of producing entire insensibility, although it has only been of late years that cold has been used for this purpose.

Excessive cold first causes extreme redness, as the result of a relaxed condition of the walls of the blood-vessels; this is followed by a peculiar biting or stinging pain, induced by the pressure of the distended vessels, upon the nerve branches, and also by the influence of the cold, directly on the nerves themselves.

After still further exposure of the part to intense cold, the extreme redness, with a portion of the congestion, disappears, until there is a sudden sting, and the part becomes white, painless, stiff, and is frozen. All the vital processes cease. Innervation, sensation, circulation, and all the usual functions of vitality are entirely obliterated. The liquids, semi-solids, become solid, crystallize, and frequently expand and press upon the more compact structures, which, only when exposed for a longer time still, will become frozen also. The process of congelation commences on the surface, extending from the surface and point of exposure inwardly; the freezing of plasma taking place more

readily than that of the floating corpuscles, which are driven away from the parts frozen, thus giving the bloodless appearance usually observed in frozen tissues. Complete freezing to death takes place in this way, which is accompanied with sleepiness, loss of voluntary motion and power, followed by a cessation of the organic functions. The lethargy may soon become the sleep of death.

Death from cold is a cessation, a stagnation, rather than a disorganization.

**RECOVERY FROM THE EFFECTS OF COLD.**—As the freezing commenced on the surface, driving the floating solids of the blood towards the heart, the thawing should commence from within, and progress toward the surface, so that the part least frozen should be first thawed, else there may be a stratum of unthawed structure between the surface and the actively vital structures, thus cutting off all innervation, and allowing chemical changes to commence, uncontrolled by vital force; which chemical changes occur rapidly in animal structures, whenever the vital force is withdrawn. When the thawing takes place from within, innervation follows, and the parts are under the influence of the vital force as fast as they thaw; the nerve circulation then penetrates, by degrees, through the reviving portion of the member, which may be restored to a healthy condition, with far less injury than might be expected. The parts most usually affected are the extremities, or those in which the circulation is most languid.

**TREATMENT.**—If possible, take the patient into a room above the freezing point temperature, and then rub the frozen parts with snow just at the process of thawing, or which is light and feathery; and this must be continued for a short time, as the frozen part must become warmer than snow, before vital action can be restored in it. When the snow is too cold it increases and perpetuates the injury. When it is less than the freezing temperature, it may be applied with advantage, as it retards the thawing of the surface till the natural heat of the body within can slowly penetrate the frozen structures, bringing warmth and vitality towards the surface. The rubbing of frozen parts with snow, as usually resorted to, is decidedly injurious.

Rubbing with the warm hand may restore the heat of the frozen surface, but cannot cause blood to flow through vessels that are congealed and closed, with frozen crystals further inward. When the nose, cheek, forehead, ears, are frozen, they should be covered with some woolen fabric, and no more heat should be applied than the rest of the system requires. They should be kept near the freezing point, and the circulation cautiously and gradually permitted to re-establish itself.

The application of snow furnishes a mechanical means of applying friction better than any other mode. A rough, hard substance is unfit, from the tenderness, or rather the brittleness of the parts. These manipulations should be made until the parts become sensible or feel natural, which may require several hours of constant rubbing. As reaction takes place the patient will be thirsty; it is well to let him drink freely of cold water.

By doing so, the patient will break out into a warm perspiration, with a genial glow over the whole surface. By this mode of treatment

the temperature will be gradually permitted to rise to a normal standard. Usually, if a part has been frozen quite solid, when vitality has been established, the epidermis becomes separated from the dermis, and blisters are formed by the exudation of the serum of the blood through the injured vessels. These blisters may be treated as the blisters formed by scalds and burns. Whenever a frost-bite is very deep and severe, unless the greatest care is taken to have it thaw properly and slowly, the parts are quite apt to slough. Such a slough must be treated on general principles, by the application of a lotion of nitric acid. Sweaty or wet stockings are a fruitful source of frozen feet, wet being a more rapid freezing agent than dry. Chilblain is a troublesome affection, induced by partial freezing,—a peculiar atonic inflammation of the skin, very common among the young or the old; especially among persons of a scrofulous diathesis. The treatment most effectual, is the use of strong stimulants, as tinct. capsicum, turpentine, strong salt and water.

### CARBUNCLE AND BOIL.

Carbuncle or boil is a painful, hard, flattened, circumscribed tumor, but slightly elevated above the skin, extending through the entire cuticle, and even beneath it, so as at times to be an inch or more deep. The surface is red, of a mahogany taint, then purple, then livid; and after the parts heal up, the skin still remains red, or of a deep brown, and the discoloration remains for some weeks.

The pain is peculiar throbbing and burning; when the carbuncle is fully formed, the surface is livid or purple. Its most prominent part soon becomes soft; numerous small ulcerated apertures form on it which gives exit to a thin discharge. Through these apertures a core beneath may be seen. The core is made up of a slough of the fibrous tissue of the inner part of the skin, and as it loses its vitality, that tissue appears to be converted into a grayish or whitish pulp, apparently soft, and mixed with an ichorous, purulent fluid. The entire surface of the carbuncle is filled with the perforations through which this fluid oozes.

Carbuncles vary in size, from an inch to several inches in diameter, and are from an inch to an inch and a half in depth. Their favorite situations are the nape of the neck, back, nates, &c. They are always attended with more or less danger from the long continued pain, exhaustion of the sloughing process, irritation, febrile excitement, aptitude to excite erysipelas, and from the fact that the disease always appears in persons of a broken down state of health—either in a vitiated state of the blood, or in some disorder of the digestive organs.

**TREATMENT.**—There are several modes of treatment.

The most prompt and certain relief is always given by making a crucial incision quite through the diseased structure, and even a little beyond its boundary into the sound part. Relief is instantaneous.

An elm poultice should be immediately applied to promote the dis-



charge—afterwards the black salve. This is regarded as the most effectual method.

But the mode of treatment pursued by the reformed profession is excellent, namely: treatment by the caustic potash. This caustic should be fresh, unaltered by exposure to the air. The best time for using it is when the skin has become dusky, and perforated by pin-hole orifices. The sound parts should be carefully protected by gutta percha dissolved in chloroform. The free application of the caustic should be followed with an emollient poultice; or the earrot poultice, to cleanse the sore; or a solution of chlorinated soda; or pyroligneous acid; or phenol sodique; or permanganate of potash, which are very useful at certain stages.

*Never use a weak caustic.*

Some authors, considering the morbid action of carbuncle as a want of power in the vascular system, of the parts affected, have sought for an application to increase or assist it, and at the same time not interfere with the natural function of the skin; this some suppose is found in the common lead or litharge plaster.

Carbonate of lead, or white lead, is not irritating; induces perspiratory exhalation from the skin.

In the mode of treatment by crucial incision or caustic potassa, we would strongly advise local anæsthesia by Richardson's apparatus.

Some are in the habit of painting the whole mass of indurated tissue with several coats of the tincture of iodine, several nights in succession, and unless it is very far advanced, its progress will be arrested in nearly every case, and the hardness, swelling and tenderness will quickly subside.

The local use of belladonna, in carbuncle or boils, affords the greatest relief; the extract diluted with glycerine is the most useful form.

The muriate of lime is often of utility. Another plan of treatment is to paint on a thick solution of the aqueous extract of opium, or stramonium, three or four times daily, and if it has not advanced too far, a few applications are sufficient to arrest the farther spread of the inflammation. Whatever means are primarily adopted, for getting rid of the local affection, the black salve is an excellent application to relieve the itching, &c., while it is always beneficial to wash it daily with some cooling lotion. If there is intense pain, the application of chloroform is attended with immediate relief. If it occurs that the first call to treat carbuncle, is when pus with dark, thick, bloody matter is discharging from the openings through the skin, followed with an hemorrhage, alarming and threatening to life, requiring prompt action. Take infusion of nutgall, or tannin, or solution of persulphate of iron, or alum, and inject into the cavity of the tumor with a simple syringe. Or, before or after the above, use the compress—a hard, flat substance, a large penny, half a dollar, lead or wood—covered with muslin, and over this the firm, tight bandage.

The constitutional treatment is of very great importance. The patient should take such medicines and diet as are best calculated to



impart tone and energy to the vitiated system, as carbuncle evidently arises from this state, a disordered condition of the circulating fluids.

If the stomach is disordered, an emetic of ipecac and lobelia, then follow with the comp. powder of podophyllum, phytolacin and quinine, iron, our vegetable alteratives, agents calculated to depurate and renovate.

Should any febrile symptoms develope themselves, resort to aconite, asclepin and veratrum.

In furunculous epidemic, which is common in some sections, I have derived great benefit from comp. syr. stillingia, alternated with yeast or nitro-muriatic acid. An alterative course is the true one—a treatment the same as laid down for cancer and scrofula.

## TUMORS.

The exclusive study of morbid growths has led to very narrow views on the subject.

The best classification is the one founded on the textures of the growths themselves, viz: *fibrous, fatty, cystic, glandular, epithelial, vascular, cartilaginous, osseous, and cancerous.*

These are susceptible of unlimited subdivisions, according to the presence of particular substances, or to fancied resemblances which some of them have to certain objects.

*Fibrous growths*,—*vascular sarcoma, simple, fleshy* tumors, are the most common and universal which occur in the body.

They are essentially of two kinds:

1st. A simple increase, by division or enlargement, of pre-existing fibrous tissue.

2d. A new formation of fibres in an exudation.

These occur in various forms. The most common is that of a cicatrix; then that form which is found after the subcutaneous section of tendons, and in the coats of some hollow viscera.

In external character, a fibrous tumor is a firm, lobulated tumor—circumscribed, movable, free from tenderness, unless accidentally inflamed. It is also free from pain, unless it presses upon some sensitive part. It grows slowly but steadily, and, when it has attained considerable bulk, the veins on its surface become enlarged and tortuous.

The favorite seats of this tumor are the subcutaneous and submucous cellular tissue. It may last the whole life of an individual without any ulterior consequences; or, by its enlargement, it may inflame the skin or mucous membrane, covering it, and cause obstinate and dangerous ulceration; or it may slough out entirely. It may produce very many inconveniences, and even death, by pressure on important parts.

This form of tumor is easily recognized. It may be distinguished from abscess, or any inflammatory swelling, by its slow but steady, painless enlargement.

From malignant disease we have the *diathesis*, the connection with the surrounding parts, the character of the pain.

The proper and only treatment is removal by the *knife*; or by caustics, or by the ligature, or by the *ecraseur*, if their attachment will permit the chain of the instrument to encircle them.

It is now extensively and successfully used for the removal of tumors.

It has one advantage—no hemorrhage follows its use.

**FATTY GROWTHS.**—The morbid increase of fat is frequently so imperceptible, that it is impossible to separate the pathological from the physiological state. Obesity may gradually increase, either locally or generally, internally or externally, so as to cause not only inconvenience but actual disease.

Fat sometimes occurs in masses, being only an exaggeration of the normal texture of the part, as when it collects about the heart; in the omentum; or on the serous membranes; in which cases it takes the form of the included viscera.

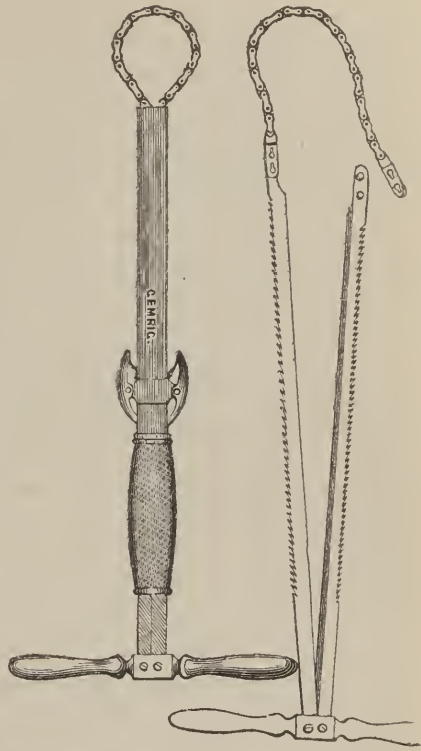
Fat may be aggregated in masses, and then form the so-called fatty tumor.

Fatty tumors consist of lobulated masses, of fat very slightly vascular, and contained in a cyst of cellular tissue. Sometimes their surface is lobulated, in others smooth, always soft and painless, feeling like fat.

Their growth is slow, but progressive, and they sometimes attain an enormous size, as high as forty pounds. They are of yellow color, resembling adipose tissue, and occasionally are divided by membranous bands, very sparingly supplied with blood-vessels. The muscular system is not only liable to become the seat of this affection, but extremely liable to fatty degeneration; this often takes place in the heart and in muscles which have not been much exercised.

**TREATMENT.**—Three favorite modes of removal:

1st. By the knife, having used local anæsthesia by a suitable apparatus, an incision rather too long than too short should be made along the tumor and through its cellular cyst. If the skin is adherent, incisions of sufficient size should be made for its removal. The tumors should be speedily removed, partly by cutting its cellular adhesions, partly by tearing them with the fingers, then examine the wound carefully to ascertain that extirpation has been complete, and after



bleeding has ceased, an effort should be made to restore the parts to their original shape, and then to obtain union by first intention, either with lead ribbon, or gauze and collodion.

2d. The second method is by the ligature, first having used local anæsthesia, as in the former case, a direct ligature should be placed round its neck—or if in a convenient situation, the chain of ecraseur might be passed round it and applied.

3d. The third method involves its destruction with the caustic potash; protect the adjacent parts well with gutta percha, dissolved in chloroform; then produce local anæsthesia, and then the caustic sufficiently long and extensive to destroy it thoroughly. A poultice of elm flour and yeast should be applied till the eschar separates. The sensibilities of the patient should be blunted with hyosciamus, &c.

**CYSTIC GROWTHS.**—The different crypts and follicles of the skin or mucous membrane, as well as several excretory ducts of internal organs, may become obstructed, and as a consequence, enlarged and hypertrophied. Encysted growths are composed of a cyst or envelope, enclosing various kinds of contents. They differ greatly in size, structure, and situation, which renders their arrangement somewhat difficult. These tumors are painless, round, elastic, circumscribed, movable, and they fluctuate indistinctly, according to the greater or less fluidity of their contents.

*Extirpation* or destruction is the only remedy. Punctures, setons, injections, or any means for obliterating them by exciting inflammation, are dangerous, and often give rise to excessive inflammation.

**GLANDULAR GROWTHS.**—Glandular growths are essentially hypertrophies of gland texture in the same manner that fibrous growths or fatty growths are an increase of fatty or fibrous tissues.

The structure of a gland is compound, and embraces two kinds of growths—gland elements, and an amount of fibrous tissue in them. The thyroid and lymphatic glands are very liable to enlarge through local irritation; the former from nervous disturbance, the latter from a neighboring ulcer or injury; the mesenteric from various affections of the blood.

The causes which excite glandular growths are constitutional and local.

Irritation, communicated to any gland, may be direct or reflex; operates by stimulating to increased cell growth, and by augmenting the flow of blood. Hence turgescence, enlargement, with the formation of cells in such numbers as to constitute the disease.

**EPITHELIAL GROWTHS.**—The epidermic and epithelial cells are continually thrown off from the skin and mucous membranes, and new ones are as constantly formed. Numerous circumstances may arise, which induce their production in greater numbers, or their accumulation in particular parts. Structures, composed of epidermic growths, as hair or horn, may become excessive, or arise in parts which are unusual.

The following may be enumerated as the principal forms assumed by this kind of growth.

**WARTS AND CONDYLOMATA**, or vegetations, are composed of elongated

papillæ of the cutis vera or epidermic cells, condensed together. The wart consists of projections of a papillary form.

When they are situated on an exposed part of the skin, where the cuticle is thick, they are dry, hard and insensible; but when they are situated on the upper part of the thigh, where the two surfaces of the skin are in contact, their cuticle is thin; they sometimes exude a serous discharge, which is contagious. Thus, condylomata and warts are frequently found around the margins of the anus, vulva and penis in syphilitic patients. Sometimes they arrive at an immense size.

They frequently form on the hands of young persons, coming and going without any assignable cause.

*Warts* may be effectually removed by the application of strong acetic acid. First pare it carefully down, and then apply the acid with a camel's-hair pencil-brush, and subsequently apply a compress of linen saturated with vinegar.

The bi-carbonate of potash is an excellent remedy.

Any strong stimulant, astringent or escharotic, will be effectual. A popular remedy is the juice of the milk-weed, nitro-muriatic acid, juice of thecelandine, iodine, sabine, &c.

**CORNS AND CALLOSITIES.**—These consist of a local hypertrophy of the epidermis, and are composed of numerous epidermic scales, condensed into an indurated mass. A corn is a distinct, rounded or acuminate tumor, varying in size from a barleycorn to that of a pea, most commonly surrounded by indurated epidermis. On examination of a vertical section by the microscope, it appears irregularly fibrous, on a horizontal section; we see the edges of the epidermis scales.

We have two varieties, the *hard* and the *soft*; the *hard* are situated on the surface of the foot, where the cuticle becomes hard and dry; the *soft*, where the cuticle is fine and spongy, between the toes. It is well to observe that what are commonly called corns between the toes, are not always corns, but excessively irritable warts, and consist of a growth from the cutis vera, and not mere thickening of the cuticle.

*Callosities* of the skin exactly resemble corns in structure, but are diffused over a greater surface. Both corns and callosities are occasioned by interrupted pressure on any part of the skin. To a certain extent they protect the delicate nervous filaments below. At other times, from their bulk or hardness, they cause increased pain whenever the pressure is modified or increased.

Corns are common on the foot from undue pressure of the shoe. Callosities occur on the knees of housemaids, and on the hands of artizans, exposed to pressure or friction.

**TREATMENT.**—The chief points to be attended to are the removal of the cause; to have the boots or shoes properly adapted to the size of the feet; to bathe the feet frequently in warm water, and then remove the thickened part with sand-paper, and extract, or apply strong acetic acid; this is the best treatment, and should be persevered with. Some are in the habit of applying nitro-muriatic acid or iodine, the alkalies, caustic, &c. Iodine is a favorite remedy, and in some cases is effectual; painting the corns with it three or four times daily. If the corns are situated between the toes, the tincture should



be mixed with glycerine, and then applied. Bathing the feet daily with the alkaline wash, and applying the black salve, has frequently had the desired effect.

*Another form of growth* is the epithelioma, which commences by a slight induration, then ulceration of the part affected. It is common in the under lip, in the tongue and in the cervix uteri.

*Hairy formations* exist in different individuals. Some men are as hairy as the lower animals. Patches of hair are met with over the entire surface, here and there.

Hair has been found in the lungs, on the mucous membrane, in the ovary, testis, and in tumors.

Horny productions, also, are not uncommon; tumors resembling warts, but so indurated as to resemble horn; true horny excrescence growing from the surface, are occasionally met with.

*Vascular growths* are formed by an increase in the dimensions or number of the arterial, capillary or venous vessels. Some of these growths are excessively vascular; the slightest touch causing hemorrhage, as in uterine polypi, fungus hæmatodes, &c. The term is more properly applied to those diseases denominated aneurism, erectile tumors, varix, which are described in another part of this work.

**CARTILAGINOUS GROWTHS.**—These growths, in structure, present all the characteristics of cartilage. They are rare; when found in soft parts they are surrounded by an envelope of cellular tissue; when in bone, by a bony capsule. They are rarely found in the glands, most common in the bones of the lower extremities. They usually feel hard, presenting a peculiar kind of elasticity. In many of these growths, deposit of bone may take place to a greater or less extent, and it may be go on and form regular *osseous growths*.

In such cases the cartilaginous tissues undergoes true bony transformation, in the same manner that normal cartilage becomes ossified, passing from the foetal state through youth, manhood and old age. True bony growths are easily recognized. They may affect the external surface, the substance, or the internal surface of bone.

Cancerous growths are distinguished from any other kind of growths, by the characters we have already described.

**THE TREATMENT** of all morbid growths may be divided into *local* and *constitutional*. The skin is sometimes affected with malignant disease, generally found near one or other orifices of the body, where there are a great abundance of sebaceous follicles.

It usually occurs in three forms, as a small tubercular deposit of scirrhus of a reddish or dirty gray hue. It may occur in this state for years, indolent or slowly enlarging, until irritated, when it degenerates into a cancerous ulcer.

It may at first be merely a thickened crust of cuticle, resembling the bark of a tree, under which ulceration slowly proceeds.

Sometimes a fissure arising accidentally, to all appearance, assumes a hardened scirrhus base, and becomes a genuine cancer.

**TREATMENT.**—The general characteristics of cancer of the skin, are extreme slowness of growth, little liability to contamination of the viscera. Therefore we have everything to hope for its destruction;

produce anæsthesia in its parts, and destroy it with the caustic potash, and adopt the constitutional treatment of cancer.

**LUPUS.**—This may be defined, a destructive ulceration of the skin, commencing with tubercular inflammation. The forms of this affection which are recognized, are as follows: the genuine lupus, *herpes exedens*, or *noli me tangere*; and the herpes or lupus *non-exedens*.

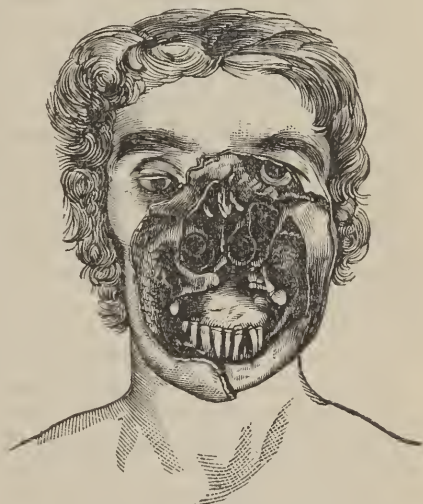
In lupus exedens, a portion of the skin of the face, mostly at or near the alea nasi, inflames, swells, and becomes of a bright, red taint. The swelling usually occurs in the form of one or more tubercles. The inflamed surface sooner or later becomes excoriated, and secretes an ichorous matter, which soon dries into an eschar. After an indefinite time, a painful, foul, excavated ulcer forms, extremely variable in its progress, being sometimes stationary or partly cicatrizing, but in the end destroying the flesh of the nose, cheek, and causing caries and exfoliation of the superior, maxillary nasal bones, till the patient becomes a horrible spectacle, and dies worn out with pain; his eye dropping from its socket into the chasm made by the destruction of the cheek. This affection occurs mostly in adults, especially those of a strumous constitution, vitiated by intemperance and gross living. The lupus non-excedens is a milder form, and attacks scrofulous children. It usually begins with shining tubercles, which ulcerate, but the ulceration has a tendency to spread more widely than deeply, causing prodigious deformity by the successive ulceration.

**TREATMENT.**—The indications are to correct and improve the general health by acting on the secretions and excretions, promoting the appetite, aiding digestion, improving nutrition by a highly nutritious diet, altering the character of the ulcer by stimulants.

To fulfill those indications, a most nutritious diet, thorough hygiene, medicated baths and the administration of those invaluable alteratives, podophyllin, ampelopsin, corydalis, anti-scrofulous syrup, comp. syrup stillingia, with iodide or bromide of potassium, with the occasional use of quinine and cod-liver oil. Alternate and persevere with the treatment.

If there is gastrodynia, give hydrocyanic acid and extract conium. Carbonate of iron is a remedy much prized, more especially if there is ulceration.

*Phosphorus* in the form of phosphorated oil, mixed up in gum and mint water.



Gold, also internally and locally, is valuable. *Sempervivum tectorum*, both locally and internally, has been used with success. So has *hydrastin*.

To alter the diseased action of the part, if it has not advanced far toward an open sore, it can be easily and radically removed by the use of saleratus water, applied several times a day. This is *better* than the old practice of perpetually touching it with the nitrate of silver, so as to keep it covered with a crust—even *better* than the more modern mode of applying a lotion of nitric acid over the diseased surface, and a little beyond, surrounding all the tubercles, and painting over all, a coating of prepared collodion. But if the bi-carbonate of soda does not speedily succeed, the diseased surface should be destroyed by escharotics, of which the caustic potash, and chloride of zinc, are the best. Next in value are carbolic and chromic acid.

The chloride of zinc should be made into a paste, with flour and water, and spread accurately with a spatula, on the diseased surface, and allowed to remain four or five hours. In all cases it causes severe pain, which is best relieved by conium or hyosciamin. After the sloughs have separated, which generally happens in from six to twelve days, according to its depth, the surface should be treated with a weak solution of sesqui-carbonate of soda, potassa, and as often as there is a return of the ulcerative process, the caustic should be applied again. I have derived very excellent results from the chloride of gold as a dressing.

### ATROPHY OF MUSCLES.

Several forms of atrophy of muscles, come under our observation, as acute and chronic atrophy. Atrophy may be a sequel of various circumstances. It may be induced by long inactivity of a muscle; it may be a sequel of a species of subacute inflammation which occasionally affects muscles or their investing fascia, and which is affected with pain, tenderness and spasm. It may be a sequel of some spasmodic disease—a frequent cause is enervation, a want of nervous power. From the effect of some terrible poison, operating on the great nervous centres, as in typhoid, typhus and other fevers, in cholera, &c., we often have a loss of power, some limb being deprived of motion, and in these cases the affected member is chilly, numb, imperfectly nourished, decreases in volume, and if the patient is young, it ceases to grow in proportion with the other parts of the body, and its flexor muscles become affected with rigidity, the joints become immovably contracted and bent. Muscle wasting then may be general or local; it may be caused by disease, want of nourishment, and it may be a part of the condition of the system, known as fatty degeneration.

Local progressive atrophy, caused by nerve injury, or nerve exhaustion, as from pressure, bruises, strains. The progress of this wasting, is first fibre by fibre, then bundle by bundle, and muscle by muscle, leaving all intact but muscular degeneration.

In acute cases, the muscles waste rapidly away; their wasting is

attended with severe pain, usually in the course of the nerves. Very frequently we can trace it to a rheumatic cause, excited by exposure to cold.

**TREATMENT.**—The early stages of this affection may be relieved in various ways. Baths, alcoholic packs over the affected muscles, friction, shampooing, electricity by faradisation and counter-irritation, if there is any evidence of local inflammation.

If due to some constitutional cause, emetics, diaphoretics, purgatives, followed by phosphorus, *nux vomica*, *scutellarin*, *cypripedin*, *rhus radicans*, *C. tinct. capsicum*; if it appears to arise from a disordered condition of the alimentary canal, or any sympathetic source, the cause must be removed.

Stimulating subcutaneous injection, brisk friction, effusions with salt water, passive motion, warmth, extension upon splints. But in cases of long standing, the only remedy that can be relied on, is division of the affected muscle, or its tendon, by which means the divided parts will retract, they will unite by lymph, and will consequently be lengthened, and then extension, and other measures may be pursued with energy and efficacy.

## MYALGIA.

Muscular pain is generally attended with want of power in the system; the fleshy parts of the muscles, or thin tendons, will not bear the least stretching, and in many cases the pain arises from this cause solely, and over-fatigue. The pain is independent of the course of the nerves, and attended with tenderness on pressure.

The affection is best relieved by measures calculated to improve the general health, raise the tone of the system, by such remedies, as generous living, tonics, stimulants, frictions and counter-irritation.

**RUPTURE OF MUSCLES AND TENDONS.**—This accident is caused by violent, muscular contraction. The muscles which are most frequently ruptured, are the *gastrocnemius*, *biceps flexor cubiti*; but more frequently the tendons give way, especially the *tendo Achillis*, and *flexor tendons of the wrist*.

The symptoms of this accident are sudden pain, sometimes an audible snap, loss of motion, peculiar to the muscle, depression at the ruptured parts, which can be felt by the fingers. The reparation in all cases is affected by the effusion of organizable lymph, which forms a callus, like that of broken bone.

**TREATMENT.**—The chief point to observe is to keep the injured muscle in a state of perfect rest and relaxation, so that the several ends may be in close approximation, and to prevent any violent extension till the union is firmly consolidated. Pain, inflammation, &c., must be counteracted by packs, irrigation, lotions, &c.

If the *tendo Achillis* or the *gastrocnemius* is ruptured, the knee must be kept bent by a string passing from the heel of a slipper to a bandage round the thigh. For rupture of the extensors of the thigh, the limb must be placed in the same position as in the fracture of the patella. If the *biceps* is ruptured, the elbow must be kept bent to its



utmost. If the tendons about the wrists or fingers, the fingers should be kept confined by a splint.

Perfect rest should be enjoined for at least four weeks, then passive motion, with the utmost care, should be resorted to, and the patient should be cautious of exercising the muscles for some time; and if it is the tendon Achilles, a high-heeled shoe should be worn for months, so that the recent callus may not be stretched and lengthened, which is apt to cause permanent weakness.

**STRAIN.**—A strain is a violent stretching of tendons or ligamentous parts, with or without rupture of some of their fibres. It produces instantly severe pain, latterly tumefaction, ecchymosis, with subsequent weakness and stiffness.

The most essential measure in treatment is perfect rest, and to secure this, if the strain is at all violent or serious, confine the part with a splint. If convenient, irrigation should be resorted to; if not, cold or warm lotions, according to the feelings of the patient. If the inflammation runs high, or a large joint is affected, then other measures must be resorted to, as the exhibition of aconite, veratrum, and asclepin, acting upon the secretions, and applying that invaluable remedy, tincture arnica, to the sprain. Nothing alleviates the pain so much, nothing prevents ecchymosis, thickening, extravasation, so well. Salt and vinegar is a good application to prevent inflammation; muriate of ammonia, in the form of a lotion, friction, stimulating liniments, moderate exercise, bandages—especially the flannel bandage—fomentations with bitter herbs, or steaming with vapor of alcohol, and other remedies directed for inflammation of joints, should be resorted to.

**ACUTE AND SUBACUTE INFLAMMATION OF FASCIA.**—Inflammation of the tendinous sheaths of muscles, designated thecal abscess, or tendinous whitlow. Both forms are attended with severe, tense, throbbing pain, exquisite tenderness, tense and resisting swelling, constitutional disturbance. If not arrested it leads to suppuration.

**TREATMENT.**—A saturated tincture of lobelia or veratrum I have found of great value; also painting the affected part with strong tincture iodine, or applying muriate of ammonia, or irrigation, or a blister, &c., &c.

If these and like remedies fail, free incisions, the application of an alkaline poultice, free secretions and afterwards tonics will be appropriate, acting freely on the liver and the bowels.

**TUMORS ON TENDONS AND LIGAMENTS.**—From severe exercise or friction small tumors are very apt to form on tendons. If not troublesome or inconvenient, they may be left to themselves; but if painful or irritable, friction, discutient remedies, should be employed.

Chalk-stone tumors, composed of lithate or urate of soda—a white, insoluble substance, which is frequently deposited from the blood in rheumatic or gouty patients. These tumors sometimes remain dormant through life; sometimes they inflame the skin and discharge large quantities of concretion. Locally, they are best treated with an alkaline lotion; internally, with iodide of potassa in an alterative syrup, the sulphites, &c.

**BURSEA AND ITS DISEASES.**—The simplest form of disease in the

bursa and synovial sheaths of tendons, is an increase of synovia, and consequent tumefaction, to which the name of ganglion is given. A ganglion then contains clear synovia, forming an indolent, fluctuating, transparent tumor, different from the swelling which constitutes a bunion, as the latter does not contain synovia, but a viscid, semi-fluid substance. The ordinary situation of ganglion is that of the various bursa. When chronic, the synovial membrane becomes thickened, and the contained fluid turbid, mixed with flakes of lymph, and the tumor loses its transparency. The usual cause of ganglion is a twist or sprain, irritation from pressure or friction.

TREATMENT.—Ganglions are the result of inflammation, and cause great inconvenience. A good mode of treatment is to puncture them, and keep the part at perfect rest. If the fluid is thick and will not flow, enlarge it sufficiently for that purpose. In all operations on ganglion, it is only necessary to make a small opening, and rely upon our alteratives and absorbents. Effusion into the bursa patella is the most common form, known familiarly as the housemaid's knee. It is an affection that is very amenable to treatment. If, after puncturing, the bursa does not granulate, the application of a minute quantity of nitric acid will have the desired effect. The various applications recently in vogue for the cure of these affections, were the insertion of a seton, to excite inflammation and cause obliteration of the cyst; blistering and compressing them; making valvular openings and injecting them with iodine; extirpation; iodine as a counter-irritant.

## DISEASES OF BONE.

Healthy bones are composed of about fifty-three parts of phosphate of lime, and ten and a half parts of carbonate of lime, deposited in a gelatinous net-work of cartilage, composing about thirty parts in the hundred of bone. The remaining six or seven parts is made up of phosphate of magnesia, soda, muriate of soda, oxide of iron, manganese, fluoride of calcium.

The quantity of lime and other constituents contained in the bones of different parts of the body, at different periods of life, vary considerably. Inorganic constituents increase with age.

EXOSTOSIS.—This signifies a protuberance formed by the hypertrophy or irregular growth of bone. Such tumors are situated immediately under the periosteum, and are at first disconnected with the bone, but after having been formed for some time, become sooner or later firmly united with the contiguous bone. It exceeds in hardness and density the bony substance to which it is attached. They never appear spongy, but the newly formed strata soon pass into the state of ivory density. They vary in size from a millet seed to a hazel nut; their surface is generally even. Some are also uneven, but always smooth and apparently polished. Sometimes they grow in the form of a horny knob, and some in a more cylindrical form. The color of these compact bodies is white, often whiter than the bone from which they grow. Exostosis presents many varieties in character and structure, and may arise from the spongy as well as the laminated structure, or

both together; they are then compounded of an internal spongy, and an external laminated layer of compact tissue. These spongy or mixed osseous tumors are not unfrequently found in the joints, head of the tibia, or on the skin, and on any of the long bones of the skeleton. In the skull the disease is accompanied with an expansion of the diploe, in which there may be an exostosis, on both the internal and external tables corresponding in situation with each other.

In the spongy forms of exostosis, the structure may remain permanent after its development; but more commonly new matter is formed in the interior, and the structure of the bone is more or less condensed, but this altered structure is often succeeded by the bones being again rarefied, and thus the growth of the spongy exostosis, outward may be affected, and may increase to a considerable size.

If this disease affects the bones of the face, it produces hideous deformity. When the exostosis are developed to a considerable magnitude, they generally continue through life unchanged. The spongy form sometimes degenerates into caries and thus disappear. Indeed, this would seem to be the process, by which the system spontaneously may be relieved from the osseous growths of exostosis. Independently of exostosis, the bones, during inflammation, exude a fluid which ossifies and forms a layer on their compact surface. This substance has received the name of

**OSTEOPHYTE.**—At the commencement of this process, there is undoubtedly an inflammatory condition, as we have an exudation of soft gelatinous lymph, which afterwards becomes tough and elastic, resembling cartilage, and in the end ossifies. The osteophyte appears velvet-like and villous when it covers the bone like a ring. There are, however, numerous variations in form, they sometimes appear to be composed of delicate fibrils and lamella, which give it a velvety appearance.

These exudations sometimes cover large portions of bone, sometimes the whole skeleton; they are sometimes associated with atrophy, and at other times with hypertrophy of the bones. Although we generally find the exudations accompanied with an inflammatory condition of the bones and periosteum, the precise condition that gives rise to the inflammation is not yet determined. The bones of the skeleton are also liable to anomalies in number, size and form. Disease of a considerable portion of the osseous system, is a serious affair.

The condition of the system that gives rise to these changes in the system are not well understood, nor do the bones themselves give any premonitory signs of the incubation of disease. The surface of the bone, in some cases, continues smooth, the periosteum natural, even when the bone has acquired the compactness of ivory. In other cases the increase in the volume of the bone is preceded by an inflammatory condition. The seat of the inflammation may be either the periosteum, the compact tissue, or the medullary membrane. When the external surface is affected, an exudation takes place on the surface of the bone which becomes ossified into laminae, this forms a layer which is sometimes separated from the surface of the bone by a layer of spongy tissue. When the inflammatory process has its seat in the medullary



membrane, it leads to increased density, either of the compact or of the spongy tissue or of both these structures.

It can be easily imagined that these organic changes cannot take place without affecting the texture of the diseased bone, and it is found accordingly that the substance of the bone becomes hypertrophied in consequence of the expansion and infiltration. The result of these changes will be the thickening at the affected portions. The inflammatory state of the bones under consideration, is frequently experienced by persons laboring under a rheumatic, syphilitic or gouty constitution, and the treatment must depend on the nature of the causes that are associated in the production of the disease.

**ATROPHY.**—This is the opposite condition from hypertrophy. Whatever causes lead or tend to imperfect nutrition of bone, tend at the same time to diminish their volume. There are consequently many states of the system which lead to atrophy, as poor diet, want of action, exhausting diseases, palsies, fractures, ankylosis, and, indeed, anything that tends to impede the flow of blood to the bones, are all accompanied with atrophy. From the nature of the various causes, any of the bones of the skeleton may become affected. In some cases the bones diminish both in length and thickness, the medullary canal becomes contracted; this is termed *concentric atrophy*. It would appear that atrophy always begins in the medullary canals, and in the diploetic structure, the cancellous structure becoming attenuated and disappearing. The compact tissue becomes changed, and resembles the spongy, diploetic structure, the outer layer remaining unaffected, but almost as thin as paper. As the atrophy of the spongy advances, the external layer only remains, and incloses a cavity with mere traces of spongy tissue at its periphery. When the spongy substance is entirely removed, the thin external walls of the bones approach each other, and form a single plate. When the cavity within the bone is enlarged, it is designated *ex-centric atrophy*. The concentric form of atrophy occurs in the large medullary canals—the excentric in the bones of the pelvis, ribs, vertebræ. It is a self-evident fact, that when such great organic changes take place in the bones, their physical characters alter in proportion, and accordingly the bones thus affected become flexible, and crack when they are bent. As the loss of the internal portion of the bone proceeds, the external portion becomes diminished. The volume of the bones may be diminished by continual pressure, such as that produced by aneurisms and tumors. Independent of special causes, the bones of aged persons often become atrophied; they are then brittle, and break with comparatively slight force.

**TUMORS AFFECTING BONES.**—The nature and the growth of osseous tumors has attracted a great deal of attention. The most common of these are:

*Cysts*, the simple cyst with serous or synovial contents, are found chiefly in the bones of the face, occasionally found in other bones.

*Fibrous tumors* grow to a large size, their structure is sometimes thick, white and elastic.



*Enchondroma* is common in the bones of the fingers, toes, ribs, sternum, &c.

*Osteoid* characterized as bone developing itself from an ossifying, cartilaginous element.

*Osteo-sarcoma*, so called from its resemblance to both bones and flesh.

The diagnosis of the nature of many tumors connected with bone, is very difficult to solve, the data is usually insufficient for the purpose.

**TREATMENT.**—In the first place, an attempt should be made to procure absorption of the tumor by such means as counter-irritation, and agents calculated to produce absorption, keeping up a continuous discharge with the irritating plaster, following with stimulants and compresses. If these measures are unsuccessful, it should be removed by operation.

**RICKETS OR RACHITIS.**—This is essentially a disease of infancy, a feeble state of the system with atrophy and distortion of the bones, generally prevalent in the scrofulous—characterized by alteration or perversion, and also suspension of the process of development and reparation of the organism, particularly of the osseous system.

The progress of this affection is that of incubation, deformity and resolution. Its existence is manifested by deformity, alteration of tissue, arrest of development, delay of ossification.

Rachitic deformity is peculiar, being always developed from below upwards from the bones of the legs to the thigh, from the thigh to the pelvis, &c.

Deformity of any one part implies that of the parts below.

All rachitic bones are less developed than healthy ones, both in length and breadth, being thin, their internal structure spongy, sometimes as soft as cartilage, unable to support the weight of the body. The deformities of the spine which happen toward the age of puberty, and all those which have not been preceded by deformities of the inferior parts, are not of the rachitic character.

Rachitis is peculiar, the stature is short, the head large, protuberant forehead, face peculiarly triangle, chin and teeth projecting, chest narrow and projecting, the spine variously curved, the pelvis distorted, the promontory of the sacrum and acetabula pressed together.

**TREATMENT.**—This affection evidently arises from an insufficiency of earthy phosphates, and the softened condition of the bones in this affection is owing originally to a deficiency in the supply of the nutritive nitrogenized substances.

The affection is not prevalent during nursing, because, as a general thing, the milk of the mother contains all those elements indispensable to the wants of a perfect child, exactly suited to the wants of the system. It is true, that after weaning, the diet adopted by most mothers, consists of articles chiefly unfit for the child. They may fatten them, but they do not give sufficient nitrogen into the system. The diet should consist more of nitrogenized substances when there is this disposition in the system. Beef essence, white of eggs, farinaceous substances, in which we have the phosphate of lime,—to whose

absence the softened condition of the bones is usually attributed. Preparations of lime and soda have been highly recommended; if given, it is best given in syrup, more especially as the sugar prevents too rapid elimination of the bony ingredients. Sugar diminishes the activity of the nutritive changes which take place in the tissues, and so lessens the amount of matter excreted.

If the malady is in any way connected with the abuse of mercury, appropriate remedies will be found in the iodide of potassa, comp. syr. stillingia, irisin, cinchona, phosphates, iodine. Scrofulous complications demand cod-liver oil, stillingia, brandy and cream, phosphorus, &c. If a child at the breast is affected with this disease, owing to the milk of the mother being poor, then the exhibition of cinchona, iron, phosphates, and most nutritious diet, &c., &c. But the indications are not to cram patients with doses of earthy salts;—moderate doses, and in an assimilable form. In rickets, distinguished by wasting emaciation, ulceration, lycopodium has been found an excellent remedy. In these cases quite a large amount of phosphates escape by the urine—in some cases, an incredible amount. The hypophosphate of lime and soda meet this indication. Tannic acid, in doses of half a grain or a grain morning and night, in sweetened water, acts well. It is a tonic and histogenetic; it arrests the excretion of lime by an astringent action on the kidneys. A syrup of superphosphate of iron is particularly applicable to rickety and weak children, being very pleasant to take. It contains five grains of iron, five of the phosphate of lime, to an ounce of syrup; hydrastin, wine bitters, C. tinct. tamarac, and other tonics, with an invigoration of the general health by thorough hygiene, salt water baths, pure air and good diet. A common feature of rachitis is curvature of the spine. Whether protuberant or lateral, it generally displaces the liver and disorders the secretions. The bile becomes defective in quantity, pale in color; the countenance assumes a sallow hue, the appetite fails, digestion is imperfect, the abdomen is tumid and painful, bowels are obstinately costive. All these symptoms are usually removed by removal of the curvature.

**MOLLITIES OSSIUM.**—This disease depends on the want of the mineral constituent of the bone. It is usually brought on from a want of power in the organs of assimilation and absorption to take up the proper constituents of the food. In most of its aspects the disease is very singular; the bones become soft and brittle, and are almost entirely destitute of the proper mineral constituents; the bones are soft and vascular; and as the disease advances they become thickened, and so very soft that they can be cut with a knife.

**TREATMENT.**—Same as for rickets.

**INFLAMMATION OF BONE.**—This may be acute or chronic. The acute form most frequently attacks the tibia or femur in children; generally attacks more than one bone; usually confined to the shaft; does not involve the articulations; and it is commonly attributed to cold.

**SYMPTOMS.**—The patient is seized with violent shivering, fever; deep-seated, severe, intense pain; great swelling of the affected limb—the skin of which displays an erysipelatous redness. After long and

intense suffering, matter forms, burrows among the muscles, and finally points at several places. In some instances the patient is destroyed by the violence of the constitutional derangement, or sinks under the profuse suppuration that follows; but more frequently the life is preserved, and the bone left in a state of necrosis.

**TREATMENT.**—If the patient is seen in an early stage, a thorough course of emetics, diaphoretics and purgatives should at once be resorted to; these should be followed with comp. syr. stillingia and iodide of potass, chloride of gold, &c. Locally, either the most active form of counter-irritation or irrigation should be tried perseveringly; but the very moment fluctuation is detected, free openings should be early made for the exit of matter; and the limb, above and below the opening, should be well bandaged to prevent the accumulation, and ley poultices kept constantly applied. The diet should be highly nutritious: essence of beef, milk punch, albumen, &c., with some preparation of cinchona. Hydrastin and iron should be given liberally; and if, in spite of all treatment, the patient seems likely to sink, amputation is the last resource.

**CHRONIC INFLAMMATION OF BONE** is usually due to some constitutional cause, such as syphilis, mercury, &c.; several bones are attacked simultaneously. In this form we have gradual enlargement, tenderness, weight, pain, necrosis, if it resulted from injury, but from a constitutional cause, irregular enlargement.

**TREATMENT.**—Improve the health by every means—diet, hygiene, tonics, change of air, alteratives, bromide of potass, C. syr. stillingia, gold. The local measures, counter-irritation, irritating plaster, fomentations, steaming, packs, &c.

**PERIOSTITIS.**—Inflammation of the periosteum generally occurs on the tibia, ulna, clavicle, os frontis, &c. It produces oval swellings, called nodes, these are caused through an infiltration of lymph into the periosteum, and between it and the bone.

**DIAGNOSIS.**—This is important, inflammatory fever; the swelling, if the disease be in the tibia or femur, is diffused, not limited, to the larger joints, ankle or knee, as in rheumatism. It occupies a wider range, and is oedematous in its nature. Besides this, we have an excellent diagnostic mark in the seat of pain. Little or no pain is caused by pressure, unless the pressure be made over the seat of the disease in the course of the affected bone. In the early stage we can move the limb at the knee or ankle; press the ligaments without producing pain; but pressure on the bone excites the most intense, excruciating suffering, the pain being unbearable.

The cause may be an injury, or exposure to cold; very frequently and, indeed, the large proportion of cases are due to some disorder of the general health, of a scrofulous, venereal taint, or the too free use of mercury.

**TREATMENT.**—The only reliable treatment in true periostitis, the one by which we can arrest and avert mischief, is early and free incisions through the periosteum to the bone. Even where there is no fluctuation perceptible, it is well to cut down to the inflamed part, and then relieve it. Then put the patient upon the C. syr. stillingia



and iodide of potassium—a pint of the former to an ounce of the latter.

It is peculiarly indicated in this disease. The condition of the secretions must be rigidly attended to. Emetics occasionally of lobelia; and as there always is here an acid condition of the stomach, an alkali; an occasional alcoholic vapor bath; stimulate the bowels and kidneys by podophyllin, leptandrin eupurpurin per.; change the abnormal condition of the urine (which is loaded with lithates and lithic acid) by the appropriate remedies. Then, as the case progresses, iron and cinchona are the most reliable tonics; indeed, iron by the allopathic profession is deemed a specific. Any form which is readily and easily assimilated should have the preference; pyrophosphate, wine of iron, small doses, largely diluted, are more readily absorbed than large and more concentrated ones. The anemic appearance usually observed in periosteal disease, seems to point to iron and cinchona as remedies calculated to control the morbid action. It is well to keep up an action upon the chylipoietic vessels, whether in the liver, spleen or kidneys. The preparations of cinchona are sometimes not so efficacious as some of our simple tonics, because they sometimes oppress rather than invigorate. An excellent substitute is the wine bitters, comp. tinct. tamarac, hydrastis, gold thread. Some physicians, instead of adopting a treatment like the above, resort to local applications in periostitis. Now, if this plan be the favorite one, covering the part with flannel saturated with alcohol, and covering the part with oil silk; the application of a poultice of pulverized podophyllum; producing a copious perspiration by steaming, &c., &c. But I prefer free incisions down to the inflamed periosteum, never waiting for the evidence of matter, for the mischief is then done, the periosteum is already separated from the bone, and the bone will die.

Periosteal thickening of the bone may be absorbed by local and internal remedies, as iodine, iodide potass, chloride of gold, irisin; locally, iodine, irritating plaster, electricity, &c. We meet with periosteal disease in the fangs of the teeth, causing the most agonizing toothache, without any apparent decay of the teeth.

**STONE BRUISES.**—This form of periostitis is common with young persons who go without their shoes in warm weather, caused by walking or jumping on stones. The bruise caused by jumping on stones, though not injuring the skin, may so bruise or irritate the periosteum as to cause deep-seated inflammation and abscess.

An excellent plan of treatment is to soak the foot in warm saleratus water. This will dissolve or soften the thickened cuticle, which may be easily scraped off, and the skin shaved over the central portion of the inflammation. The persistent use of a hot alkaline foot-bath, with due efforts to scrape off the hardened skin, will arrest the inflammation, if it has not proceeded too far. If pus form in spite of this treatment, evacuate it, and flow into the cavity an injection of Logul's solution of iodine.

**ABSCESS** is rarely a consequence of inflammation of the bone; they may, however, be suspected, when in addition to permanent inflammatory enlargement and tenderness, there is a fixed, tensive, pain at one



particular spot, aggravated at night, and unrelieved by any remedy. If there is reason to suspect the existence of abscess, the bone should be laid open by a crucial incision, and an opening made by a trephine or chisel, and injections of a strong alkaline nature thrown into it twice a day.

**NECROSIS.**—Bones, like all living tissues, have their arteries, veins and absorbents, &c., and of course, are liable to all diseases peculiar to living parts. Necrosis signifies the death or mortification, local death of the part. It most generally attacks the firm, bony structures, as the femur, tibia.

The term exfoliation signifies, necrosis of a thin, superficial layer. Necrosis is a frequent consequence of inflammation. In the majority of cases of necrosis, the epiphysis or articular extremities are fortunately unaffected. The dead portion of the bone is technically called the sequestrum. The source whence bones are repaired, after necrosis, have been divided between the soft parts, periosteum and bone. It is true that bone is often deposited in various parts of the body, from the periosteum and soft parts, in the neighborhood of bone, but it is very apparent that this is accomplished by bone, and especially by the epiphysis of the long bones, after certain dead portions have been removed. For example, when no epiphysis is present, as in the cranial and flat bones, we perceive very little effort made for the renewal of any lost portions; so great is this power of reparation, in the long bones of young people, that instances are recorded where some of the long bones have been entirely renewed.

**SYMPTOMS.**—After acute inflammation in a bone, it remains permanently swollen, and the apertures which are made for the discharge of matter, remain as sinuses, from which many sensitive irritable granulations spout forth. These sinus apertures in the skin, correspond to holes in the shell of the bone, and if a probe be passed into the part, the sequestrum may be felt loose in the interior, or at least the probe will grate against dead bone.

**TREATMENT.**—In the treatment of extensive necrosis, two practical points of great importance present themselves. In supporting the constitution and preventing hectic, and in the very tedious process of the production of new, and discharge of the dead bone.

If called in at an early stage, the grand leading idea in treatment should be, if possible, to get rid of the inflammation, so as to prevent ulceration and its sequelæ, necrosis and caries. This can be effected often by energetic and judicious treatment, such as an issue made with caustic potash, and applying the irritating plaster after the eschar has separated, keeping up a free discharge, steaming the limb daily. If the above is not deemed justifiable, then discutients, fomentations and poultices, as lobelia, vinegar and elm; fomentations of hops, vinegar and salt; iodine and the actual cautery, &c., are the favorite allopathic remedies. Constitutional treatment is of the greatest importance; blood-elaborating diet, thorough hygiene, should be used, the liver should be attended to by mild cholagogue cathartics; diaphoretics of an anodyne character, as aselepin and xanthoxylin, in conjunction with the alkaline bath, should daily be resorted to, so as to

encourage a free action from the skin; the kidneys should be looked after with some stimulus, and tonics and alteratives should be freely and perseveringly given. We have found excellent results from stillingia, gold, irisin, nitro-muriatic acid, phosphorus, &c. If, however, this course of treatment fail, ulceration and death of the bone takes place; we must keep the part freely open, either by the caustic potash, or the sesqui-carbonate of potash; if the sinuses are in a direct line, unite them with the ligature or caustic; inject the sinuses daily with an alkali, the mild caustic, the sesqui-carbonate of potash; this has a peculiar effect upon the old and new bone. If the openings are free, the daily injection used, and a rigid alterative tonic treatment pursued, the dead pieces will come freely away. All rough treatment, such as chiseling, extractions, &c., must be carefully avoided. After all the dead portions are removed, the ulcers should be treated with the black salve.

CARIES is an unhealthy inflammation of bone, which first produces softening, and then leads to ulceration and suppuration. Caries usually attacks bones of a soft, spongy texture, as the vertebra, the round and flat bones, and the articular extremities of the long bones. In nearly all cases its genuine cause is some constitutional disorder, scrofula, syphilis, mercury. The symptoms are the same as in necrosis the bone enlarged, one or more sinuses open from it, at points that are soft, red and sunken. Passing a probe into them, it breaks down the softened textures of the carious bone, which give a gritty feel.

TREATMENT.—The indications are, to remove the local disease and rectify any constitutional taint. Put the patient upon a constitutional course, as directed for scrofula and syphilis. The different preparations of phosphorus, lime and iron, with albumen; essence of beef, elements to give the system the ingredients from which to form new bone. If the system be much debilitated, the wine bitters, or comp. tincture of tamarac, or cinchona answers remarkably well as a tonic. If mercury be suspected to be the cause, and, indeed, most cases of caries are occasioned by that destructive mineral, then the comp. syr. stillingia, with iodide potassium and iodine baths; this will set the mercury free in the system and much of it will be carried off by the excretions. A valuable preparation of lime is the simple aqua calcis, given in appropriate doses, thrice daily. Although a local disease, never spare internal remedies. The treatment in all respects is the same as in necrosis.

## TUMORS OF BONE.

Tumors of bones are divided into two orders, the malignant and non-malignant. The most prominent of the first class are:

Tumors from extravasated blood are oval, firm and elastic, and when punctured by a grooved needle, yield a dark, grumous blood.

Pulsating tumors are sometimes developed in bone tumors depending on an enlargement of the osseous arteries.

OSTEO-ANEURISM, tumors formed by the development of erectile

tissue; and the circulation of a malignant growth, being strong, are often found pulsating and yielding a wheezing noise.

**CARTILAGINOUS EXOSTOSIS.**—Osteo-sarcoma, enchondroma. This growth is a firm spheroidal tumor, consisting of masses of true cartilage embedded in a fibro-membranous cellular structure.

A fibrous tumor containing bony spiculæ is frequently found developed in the substance and on the surface of bone.

Hydatids or their cysts are occasionally developed in the substance of bone.

The most prominent of the second class are: medullary sarcoma and scirrhus. The principal points which distinguish the malignant from the non-malignant tumors are, the characteristics of the malignant, their great rapidity of growth, the greater pain, their greater softness, their greater tendency to blend and become involved, with the adjacent tissues; the existence of the malignant diathesis. But it is sometimes impossible to form a correct diagnosis; it is consoling to know that the same measures that will cure the curable affections, will check the incurable.

The course of treatment will be, therefore, to build up and invigorate the system by every means possible. A thorough alterative course, rely chiefly upon gold and syr. stillingia, and iodide potassium; change of air; sea bathing. If these measures fail, extirpation and amputation may be performed with some hope of success.

## FRACTURE.

Fractures are invariably the result of mechanical violence; hence they most frequently affect the long bones, and the most exposed of these are the humerus clavicle, femur, and bones of the leg. A force and a resistance are necessary, according to the laws of mechanics; blows, falls, crushing, and inordinate muscular contraction, are the chief causes by which bones are broken.

The causes, then, of fracture, are *mechanical* violence and *muscular* action.

Mechanical violence may be *direct* or *indirect*. It is said to be direct when the force acts at the point of lesion—at the part to which it is applied. It is said to be indirect when a force is applied at one end and the resistance at the other, the bone giving way at some intermediate point. If the bones are preternaturally weak, they are liable to be fractured by muscular action.

There are certain circumstances which render the bones of some persons more liable than usual to be broken, such as old age, where we have the bones hard and brittle, the animal matter having lost its elasticity. Certain diseases of bone—the bones of some people are exceedingly brittle. Some follow occupations which expose them to violence.

*Pain, loss of power, swelling* and *ecchymosis*, are apt to attend fracture of any bone; but the reliable symptoms are essentially *three*.

*Deformity*, as *bending, shortening, twisting* of the injured limb.

*Preternatural mobility*, one end of the bone moving independent of the other.

*Crepitus*, a grating noise, heard and felt when the broken ends are rubbed against each other.

All fractures are *simple* or *compound*. These may assume different varieties.

*Simple* fractures are such as do not communicate with the atmosphere by a wound. *Compound* fractures are such as do communicate.

Abscess or gangrene may convert a simple into a compound fracture. A fracture is said to be complete when the entire thickness of the bone is affected. The term *transverse*, *oblique*, *longitudinal*, *fissured*, and *stellate* explain themselves. *Camerated* fractures always affect flat and thick bones; they present several cracks radiating from a depressed point. *Comminuted* fractures are those in which there are more than two fragments.

Complicated fractures are such as have associated with them other serious lesions, such as dislocations, injury of nerves, blood-vessels or viscera.

After a simple fracture is sustained, inflammation is set up at the seat of injury, which gradually subsides in from six to eight days. This gives way to the reparative process, and this being completed in from three to eight weeks, the *modelling* of the new material by absorption begins, and lasts an indefinite time. Occasionally, from various causes, we may have delayed union or non-union, or false joint.

There is seldom any danger in simple fracture, unless the patient is an inebriate, or is very old or feeble.

In compound fracture there is always more or less danger, and it is proper if the nature of the case will admit of it, that it be made a simple fracture, by making an effort to have the external opening closed, and union effected by first intention; the shock to the system is greater, besides the risk of inflammation, suppuration, tetanus, hectic, &c.

Complicated fractures are more or less serious, according to the character of the complication. A fracture near the joint is very apt to be followed by more or less stiffening.

All fractures are liable to leave behind them some degree of impairment of the limb, as stiffness, shortening, tendency to rheumatic pains, aggravated by changes in the weather, and it is the duty of the surgeon to forewarn both the patient and his friends, of every possible contingency, lest they be charged to defects in treatment.

**REPARATION.**—The injury inflicted in any case of fracture, is rarely limited to the bone. The ends of the broken bone are driven in opposite directions, and penetrate the adjacent tissues, wounding and bruising them. But if the fracture be simple, the repair is usually perfectly effected.

The union of fractures is effected by the effusion of lymph—by the organization of the new material connecting the fragments. But union may be immediate if the bones are kept in exact apposition, the most absolute, perfect rest enjoined.



The broken ends being held in perfect apposition, may thus be united without any new material being formed for the connection; a continuity of tissues and blood-vessels being restored, similar in all respects as in union by first intention of the soft parts.

But this is rare. The process of reparation varies considerably in different bones. But the most common course of procedure is, after fracture of an ordinary bone, a quantity of lymph is effused into the cellular tissue around the broken parts. This, in two or three weeks, becomes converted into a *cartilaginous capsule*, which is called a *provisional callus*, which completely surrounds the fracture, and adheres firmly to the bone above and below it.

In two or three weeks more the *provisional callus* ossifies, and then the use of the bone is restored. But at this time the ends of the fractured bones are not directly united, and if the provisional callus were removed, they would still be separable. In the course of five or six months, however, ossific matter is gradually deposited between them, and the provisional callus is absorbed. The lymph that forms the callus is effused from the bones, periosteum, and indiscriminately from all the adjacent tissues around the fracture, and once effused, its conversion into cartilage, and then into bone, is the result of its own organic forces.

But, after fracture of the cranium, acromion, olecranon, patella, cervix-femoris, or any bone invested with synovial membrane, *no provisional callus* is formed.

After fracture of such bones, or others in the same category, if the divided parts be kept in the most exact apposition, the lymph effused will be converted into ligament, which very slowly, if ever at all, ossifies.

This is undoubtedly a wise provision of nature, when we consider the bad results that would follow if a callus was thrown out into the cavity of a joint, or the interior of the skull.

**SYMPTOMS.**—We have seen that the *essential* symptoms of fracture are, *deformity, preternatural mobility, and crepitus*.

**GENERAL MANAGEMENT.**—When called to a case of fracture, certain important considerations present themselves; we must look after the general condition of the patient; his mental anxiety should be allayed by proper consolation; if there is prostration, administer stimulants or sedatives; if away from home, consider the question of removal, or arrangements for his convenience. In making an examination, rip off the clothes, and, if necessary, resort to anæsthetics, if not contra-indicated during the examination, or reduction or setting of the fracture.

**TREATMENT.**—The general indications in the treatment of all fractures are—to procure union, which is accomplished by keeping the parts at perfect rest, and in exact apposition, to prevent deformity. For the latter purpose certain applications must be used which will counteract displacement.

The successful treatment of fractures is extremely simple. The forms and relations of the bones; their peculiarities; displacement from muscular action should be obviated by keeping the part, if pos-

sible, in such a position that every muscle which exercises the least tension should be *perfectly relaxed*, aiding this by extension and support. There are some rules that are worthy of remembrance in the treatment of all cases.

Before anything at all is done, it is very clearly indicated that for the comfort of the patient the injured limb should be carefully washed with soap and warm water, and the washing should be repeated every two or three days during the whole course of treatment, the cure being much hastened by a wholesome state of the skin.

The limb must be put in a position that will relax the muscles that cause displacement.

The fracture must be reduced or set; that is, the broken parts must be adjusted in their natural position. For this purpose the upper end of the limb must be held steadily, whilst the lower end is extended or drawn in such a direction as to restore the limb to its proper length and shape. The extension should be made *firmly, gradually* and *gently*, otherwise it will aggravate the muscular spasm which it is intended to overcome.

In nearly all cases a bandage should be applied from the extremity upwards. This prevents swelling, confines the muscles, that they may not contract and disturb the fracture. It also prevents spasmodic action.

Some mechanical contrivance should always be used to keep the limb of its natural length and shape, and prevent any motion of the fractured part. It is usual to employ for this purpose an endless variety of mechanical apparatus.

In the application of the old method of treatment, by splints, the sound limb should be measured, and splints selected that are long enough to rest against the condyles or other projecting points at its extremities. These, if used, should be well padded; and pads are easily made of horse-hair, tow, cotton, several folds of a roller. When the limb is evenly bandaged, the splints should be applied and firmly bound to the limb with a roller.

Several substitutes for wooden splints have of late years been introduced, as the gutta-percha, &c., &c. One of the best and most convenient of these applications is the gummed or starched bandage.

It consists merely of layers of bandage, impregnated with a mucilage of starch, or gum arabic, or arrow-root, or glue. All fractures of the leg, except compound, may be treated with this.

My favorite plan of using this is as follows: Apply the ordinary roller next the skin, then two or more pasteboard splints, made perfectly soft by soaking in hot water, then mould to the shape of the limb, apply, and lastly a bandage which has been saturated with a solution of starch or gum arabic. This becomes quite dry and hard in a few hours, and forms a most excellent dressing. The only cases in which we have any fear of employing it, are in very young children of a strumous habit of body, whose skin is tender and irritable. It is easily removed.

We are very partial to it in fracture of shaft of the humerus. It

has been used in fracture of the femur, but the counter-extension process, by adhesive plaster and sand-bags, is superior.

Another contrivance, known as the moulding tablet, will sometimes be found very useful. It is composed of two layers of sheeting, stuck together with gum arabic and whiting. It is easily prepared by rubbing very finely powdered whiting with mucilage of gum arabic, till it acquires the consistency of thick paste, then spread this on the surface of the sheeting, which is then to be doubled on itself. It dries without shrinking, and becomes remarkably hard and tough, and is easily softened by sponging it with hot water, so that it may be adapted with the greatest accuracy and precision.

In the winter season a very excellent form of dressing may be made out of shellac, as follows: Take gum shellac, finely pulverized, 1 lb; alcohol, at 95 per cent., 1 quart. Mix, and gradually dissolve with a moderate heat. Then saturate strong linen cloth in the solution, tack it up to dry, to evaporate the alcohol. To apply this at any time it is wanted, it should be cut in proper shape, and simply immersed in hot water, when it can be readily and nicely adapted to any part. If it is desirable to make an exceedingly strong splint, dip it several times in the solution, evaporate and repeat.

Some, again, use straw splints, and every conceivable form of dressing; others place the limb on a pillow and apply lotions. This may be proper where there is a tendency to great tumefaction, because the use of splints or bandages for any restriction of swelling is very liable to produce gangrene; so that, under these circumstances, the limb may be placed upon a pillow, in a semi-flexed position, so that the muscles may be perfectly relaxed, and the bones placed as nearly in their natural position as possible, which circumstance can be easily ascertained, whatever be the swelling, by the comparative ease of the patient.

Irrigation, if convenient, or an evaporating lotion, should be resorted to for reducing the inflammation. Should there be a tendency to spasmodic contraction of the muscles, strips of adhesive plaster may be applied around the limb. If it can be avoided, purgatives should not be given, as they produce the necessity of a change of position.

As soon as the tumefaction has subsided, which will occur the moment the inflammation has been controlled, well-padded splints should be applied, and retained in position by a bandage.

In all cases of fracture, it is almost invariably the best course to use measures at once for keeping the fracture immovable—first the bandage, then the splints.

When a fracture happens in the neighborhood of or passes a joint, irrigation, counter-irritation, free secretions are indicated, podophyllin, leptandrin, bi-tartrate of potassa in alternation with hyosciamin, scutellarin, and cypripedin, will be found of the greatest service. In fractures into joints, where the inflammation runs high, become so violent that ankylosis must necessarily follow, the joint should be placed in such a position as to render the limb as useful as possible. Under these circumstances, if the elbow joint be the one affected, the forearm should be semi-flexed, by which position the patient will be able



to feed himself. In the knee-joint the leg should be very slightly flexed on the thigh, by which method he is better able to direct the foot, and the limb is rendered more manageable in the sitting posture. In the ankle joint, we should endeavor to procure union with the foot perfectly flat, whereby the patient will afterwards enjoy considerable use of his limb. In the treatment of all cases of fracture, efficient means should be used to meet every indication, control always the spasmodic action of the muscles, the starting of the limb, the jerking of the broken ends, the displacement by bandages and splints, *swelling*, *pain*, *tension*, and *inflammation*, should always be controlled—the rollers and splints loosened, if such take place, and afterwards tightened when subdued.

The greatest care should be taken to prevent undue pressure on any particular spot, and to rectify any displacement the moment it is detected.

If, through mismanagement, a fracture has united crookedly, an attempt should be made to bend the callus, and restore its proper shape. This may be easily effected before the fourth week—it has often been successful later.

In some cases, breaking the bones and rubbing the two ends together, and then applying the bandages and splints.

The remaining treatment of simple fracture must be conducted on general principles. Stimulants to restore the patient from the shock. anodynes to allay pain and muscular twitching, warm or cold lotions, according to the feelings of the patient; inflammatory action should be subdued, with aconite, asclepias, veratrum, gelsemin, &c.; do not disturb the bowels by any means, if you can possibly avoid it.

### NON-UNION AND FALSE JOINT.

There are some cases in which the fracture of the shafts of bones does not unite by bone. This is liable to happen from various causes, and is essentially an arrest of development of the reparative material. If the fractured part is subjected to frequent motion and disturbance, in which case the effused lymph, instead of ossifying, will either be converted into a ligament which unites the broken extremities, or else a false joint will be formed, the ends of the bones being covered with synovial membrane, and surrounded with a ligamentous capsule.

The reparative or vital force may be deficient, if the system is exhausted by any cause, as old age, debility, or if the system is under the influence of disease, as gout, syphilis, cancer; or if any acute disease or fever comes on, or if the patient becomes pregnant, and all the nutritive energies of the system are employed in the development of the foetus, or if the part be deprived of its nervous influence.

TREATMENT.—Non-union in fracture, is most generally due to debility; a want of stamina in the system, and the indications evidently are to overcome this by nourishment and tonics, and perfect rest of the parts, which should be put up in splints, or the starched bandage; or it might be enveloped in a mould of plaster Paris, so as to insure the most perfect rest—exact apposition and pressure of the



broken ends against each other, taking care not to bandage too tightly to impede the circulation. If this does not succeed after a fair trial of six weeks or two months, means must be adopted to excite adhesive inflammation around the fracture. This is done in various ways, by *rubbing* one end of the bone roughly against the other; this failing, a *seton* is sometimes successful, passed through the flesh, adjacent to the fracture—applying the *irritating plaster*—painting with *tincture* of iodine, puncturing and stirring up the callus by subcutaneous incisions, covering up the puncture with gauze and collodion. By rubbing the ends of the bone together, the parts will probably be reduced to a state analogous to that which exists in an ordinary fracture at first. A deposit of lymph will form; this will form the basis of a plasma for becoming organized, and a very excellent imitation of the ordinary provisional callus, while, at the same time, secretion and organization will advance from the ends of the bone, and consolidation be completed. The connecting materials of the false joint are disrupted, excited, and take on an increased action, not destroyed. They are valuable towards the formation of bone, especially brought into, and maintained in a state of moderate vascular excitement; a state of active hyperæmia, which is indispensable, and which precedes the osseous transformation of the fibrinous, cartilaginous, and fibro-cartilaginous tissues.

If the above, or like modes of treatment fail, then the practice of piercing the part with a scalpel, down to the fracture, and drilling holes through both bones, and inserting ivory pegs in the holes, thereby exciting inflammation, removing the pegs, and allowing the wound to heal. Supposing these fail, and the bones cannot be united, then the screw, which is merely a fine gimlet, should be inserted on each side of the bone and brought through both bones and allowed to remain until an effort at union would take place. Perhaps the wire ligatures would be preferred; boring canals in the cylindrical parts of the bone about three-eighths of an inch long, then passing a No. 16 wire through these canals, and twist it tightly till the bones come firmly in contact. In old stubborn cases, it has been tried with success. Removal of the ends of the bones, dressing in the usual manner, perfect rest and apposition, keeping the limb under complete restraint.

Electricity has proved wonderfully successful, introducing a needle from each side of the limb into the interspaces between the bones, and pass a continuous current of electricity through them. Electricity is best applied by introducing a long acupuncture needle into each side of the limb, so that their points come near the interspaces between the fractured ends of the bone, and thus pass a current of continuous and primary galvanism, and continue twice daily for two or three weeks. (Ten elements of Daniels' battery.) The current is often applied twice daily from large, soft, sponge electrodes, but never so successful as the needles. The current should not continue longer than twenty minutes at one time.

In these cases, the dressing should be perfect, the ordinary splints, or pasteboard splints may be tried, but in addition, we would highly

recommend the starch or plaster of Paris bandage, by which means the slightest movement will be effectually prevented.

The plaster of Paris bandage is made by rubbing dry plaster of Paris well into an ordinary bandage, enveloping the patients' limb in a roller, and over this, this bandage, slightly wet, should be applied, or dusted on, plaster of Paris; as each turn is made, it should be more thoroughly moistened, and then it lies quite evenly and comfortably. Additional strips may be laid on for the sake of greater security.

In the treatment of ununited fracture, there should be the greatest care possible taken, to detect and rectify any constitutional taint or disorder to which the want of union can be attributed; debility must be counteracted by tonics, iron, phosphorus, cinchona, hydrastis; the best of food, thorough hygiene, &c. There is no greater error than in permitting local treatment to exclusively occupy attention. Constitutional management should never be overlooked, because it often proves of the highest importance.

### COMPOUND FRACTURE.

A fracture is said to be compound when accompanied with an external opening in, or a wound of, the soft parts, communicating with the broken bone—a complication which gives rise to inflammation and suppuration throughout the whole extent of the injury, preventing those milder processes being effected, which, under the more favorable circumstances of the skin being entire, lead to a rapid union of the broken parts. The ordinary causes which render a fracture compound are the injury which broke the bone, the bone being thrust through the skin; by subsequent ulceration or sloughing of the integuments. The dangers of compound fracture are very numerous, we have the shock and collapse on the reception of the injury, which is often fatal if much hemorrhage has taken place.

Inflammation, typhoid fever, tetanus, hectic, pyæmia; laceration of arteries is usually a dangerous complication. This is known by the great flow of blood, if there be a wound, if not, by a rapid, diffused, dark, colored tumefaction of the limb with coldness, want of arterial pulsation in the parts below.

If it is the femoral or brachial, amputation will most probably be required—if any of the secondary branches they should be secured, provided there is no other cause for amputation.

The question of amputation in compound fracture is a most important one to decide. We must look carefully at the extent of the injury, the vigor of the vital forces of the patient. If the bone is excessively shattered; if the fracture extends into a joint, and the soft parts are irreparably bruised or destroyed; if the patient is much enfeebled by age, previous disease, loss of blood, and a host of other contingencies; amputation is frequently requisite. We can always risk more with the young, and the vigorous, or even an aged person of a spare habit, who has always been healthy, than with those who are plethoric and intemperate, and in the habit of enfeebling their vital powers by over-stimulation and animal indulgence.

Amputation, as a rule, should invariably be primary, that is, performed before the accession of fever and inflammation.

TREATMENT.—If it is decided to save the limb, it should be placed in a proper position, the fracture reduced, and if any end of the bone protrudes and cannot easily be returned, it should be sawn off, and all fragments or splinters should at once be removed, for if they are permitted to remain they aggravate all the dangers of a fatal termination. After reduction, the great object should be to procure adhesion of the external wound, so as, if possible, to convert the compound into a simple fracture. For that purpose, dry dressing is the best application. Always bear in mind to have apertures in the splints corresponding to the wound, so that if necessary it may be dressed without disturbing the limb. If inflammation comes on, the bandages must be loosened, counter-irritation or other measures applied to reduce the inflammation. Anodynes, arterial sedatives, daily sponging with the alkaline wash, and attention to all the minutiae of the case, together with tonics, wine, generous diet.

### SPECIAL FRACTURES.

FRACTURES OF THE NASAL BONES are always caused by direct violence, such as a blow or kick. The deformity and pain are very great; sometimes, especially if the cribriform plate of the ethmoid bone has been broken, inflammation of the brain may arise, and destroy life.

The treatment is to pass a female catheter, a quill, or some instrument of like shape, up the nostril, and mould the bones upon it; lint wet with ice-water, being afterwards constantly applied until the pain and inflammation have subsided. Arterial sedatives, cathartics, diuretics are also called for in most cases.

When the nasal cartilages are broken or displaced, the symptoms and treatment are the same as in the former case.

FRACTURES OF THE UPPER MAXILLARY BONE, are always caused by great and direct violence, such as gun-shot injury, or the kick of a horse; they are very apt to be compound. In most cases of this kind the chief danger is from hemorrhage; if the vessel cannot be found, strong styptics should be made use of; and if these fail, the wound must be cleansed by sponging or syringing, and the actual cautery applied. Cold water-dressings will generally afford most comfort.

When the alveolar process is involved, and especially if the fracture is confined to it, the teeth on either side of the injury ought to be fastened together by means of a wire loop cast around them. It is usually better for the wire to embrace four teeth; its ends are drawn as tightly as seems proper, twisted together, cut off, and a little bit of cork or gutta-percha stuck on so as to prevent them from scratching the mucous membrane of the cheek.

Deformity can scarcely be avoided after these injuries.

FRACTURES OF THE LOWER JAW—This is usually caused by direct violence. Its most usual situation is at the middle of the horizontal



ramus, sometimes in children it occurs at the symphysis, and still more rarely at the ascending ramus.

**SYMPTOMS.**—The signs are seldom obscure, as we have pain, swelling, inability to move the jaw, irregularity of the teeth, crepitus is felt, the gums may or may not be lacerated.

Much care is required in the treatment of this injury.

The beard, if the patient wears one, should first be shaved entirely off. If there is great displacement, or if, although slight, it tends to recur, the teeth should be wired together as in the case of the upper jaw; then, care being taken to make the lower dental arch correspond to the upper, a pasteboard or gutta-percha cap should be fitted to the chin. Sometimes a very small, firm compress, so placed as to bear against the inner border of the lower jaw, is of use in preventing either fragment from projecting inwards. The cap being held in place by adhesive strips passing round beneath and in front of it, is then firmly bound on by means of the following bandage.

A roller two inches wide and seven yards long is applied, commencing below the occiput, passing up over the parietal protuberance, across the sagittal suture, down the side of the face, under the chin; up the other side of the face, and across the top of the head again to below the occiput; two ovals being thus made, a third is added by a turn along under the ear, in front of the chin, and back again under the other ear. This process being repeated until the roller is exhausted, pins are placed at all the points of intersection. Nothing can be more elegant or effective than this bandage when neatly and firmly put on. The annexed wood cut (*Fig. 5.*) illustrates the application of this dressing remarkably well.



*Fig. 5.*

Another plan, is to slit up a bandage, three inches wide and a yard in length, from either end to within three inches of the centre; which being applied over the jaw, the two tails on either side are crossed over one another, and the corresponding ones tied at the top and back of the head respectively; but never so valuable as the former.

Various machines, with plates to fit the dental arch and the under part of the jaw, have been devised; they hardly admit of any general description. Very often, however, the surgeon may accomplish the same end by taking a piece of gutta-percha or sheet-lead, doubling it over upon itself, bending it to make it fit the dental arch, and leaving it thus in position, when the outside cap and the bandage are put on. If necessary, both the upper and lower dental arches may be thus confined.

**FRACTURES OF THE VERTEBRÆ** are generally the result of falls or of some crushing force, such as the passage of a wagon-wheel over the body. In the former case, the injury may actually be due to indirect violence, the bone giving way before the momentum of one portion of the body, the other being suddenly checked by contact with the ground



or some other obstacle. The symptoms vary much, according to the point at which the vertebral column gives way, and depend for their importance upon the injury inflicted on the spinal marrow and the nerves given off from, at and below the spot. The cord may be broken through, lacerated or pressed upon, the pressure being caused either by displacement of the fragments or by effusion of blood, serum or lymph, beneath the membranes. Sometimes the patient seems to do very well, until by some inadvertent motion, the fragments are thrown out of place.

Loss of sensation and voluntary motion, irregular pains and abnormalities of temperature, with paralysis of the muscular coats of the bowels, or bladder, or of the sphincters, are the main symptoms.

THE TREATMENT of these cases consists chiefly in promoting comfort, and in endeavoring to correct and obviate whatever troubles may arise. Great care should be taken in the lifting and handling of the patient, and in the examination of the injury. Pillows and compresses should be so arranged, on a firm mattress, as to support the whole body in the easiest posture. If involuntary discharges take place from the bladder and rectum, the bed should be duly protected. Bed-sores are very apt to occur, and must be guarded against by stimulation of the skin, by air-cushions, changes of position, &c. Particular attention must be paid to drawing off the urine as it collects, by means of the catheter; the bowels must also be unloaded from time to time by cathartics or enemata.

FRACTURES OF THE STERNUM are generally due to severe blows, to the kick of a horse, or to crushing force; but cases are on record in which the bone has been forced asunder by great muscular effort on the part of the patient. They are attended with great pain, and usually with deformity; mediastinal abscesses and caries of the bone have sometimes ensued. Immediate death has been caused in some of the cases by injury of the heart.

Careful adjustment of the fragments, a firm bandage around the chest, with anodyne and arterial sedatives; active measures must be resorted to, and any complications must be carefully watched for, and promptly met with the proper remedies.

FRACTURES OF THE RIBS are generally situated in their anterior half, and are commonly caused by direct violence,—such as blows—the bone giving out at the point struck. Sometimes caused by indirect violence, as when the chest is violently compressed between two points.

SYMPTOMS.—Fixed, lancinating pain, aggravated by inspiration, coughing, or any other movement; difficulty of breathing, with deformity and crepitus, are the principal symptoms. Emphysema, pneumothorax, pleurisy and pneumonia, may, any or all of them, take place. If the fracture be situated near the spine, or if the patient be very corpulent, it may be difficult to detect the fracture.

TREATMENT.—The indications here are to prevent all motion of the ribs. A firm bandage round the chest, or the application of a sufficient number of adhesive strips, to support the broken bone or bones, will, in most cases, give comfort. The strips should be an inch and a

half wide, and six or eight inches long; they should overlap one another by one-third, run parallel with the ribs, and cover several sound ribs above and below the fracture.

Rest is essentially necessary in these cases,—absolute rest.

The second indication is to obviate inflammation of the chest, and *diminish* the arterializing duties of the lungs by veratrum, aconite and asclepin; *relieve* the abdominal viscera with podophyllin, leptandrin and euonymin, so as to enable the diaphragm to descend freely; and administer some nervine to prevent pain and cough; cypripedin, asclepin, and hyosciamin. It is astonishing how quickly a patient will get well if properly managed.

FRACTURES OF THE PELVIS are only caused by tremendous violence, and are dangerous, chiefly from the injury apt to be sustained by the viscera at the same time. If the urethra is ruptured, there will be blood trickling from the end of the penis; if the bladder is torn, there will be collapse, abdominal tenderness, and no discharge of urine per urethra. Rupture of the rectum is impossible from mere breaking of the bones, although a fragment has been known to pierce a portion of the small intestine. Cases of fracture of the os innominatum passing through the acetabulum, caused by falls on the hip, might be mistaken for fracture of the cervix femoris. The diagnosis will be guided chiefly by the *crepitus*, on applying the stethescope to the ilium, and by examination per anum.

When a fracture of the pelvis is suspected, the best plan is to proceed as if it were clearly made out; a broad roller should be firmly applied round the part, a few turns being taken round the upper part of each thigh, to prevent the bandage from slipping upwards. The visceral injuries, if there be any, call for prompt, and careful, independent treatment. The patient must be kept perfectly quiet.

FRACTURES OF THE CLAVICLE.—The clavicle is, perhaps, as often broken as any bone of the body. Its exposed situation, at the upper part of the trunk; its long, slender shape; its being covered only by the common integuments, render it very liable to frequent accident. It may be due either to direct blows or to indirect violence. The bone is most apt to give way near the middle.

THE SYMPTOMS are, inability to lift the affected arm, and the patient supports it at the elbow; the shoulder sinks downwards, forwards and inwards. The patient is unable to rotate the humerus; crepitation, or a grating sensation is experienced when the parts are moved; pass the finger over the bone, the seat of fracture is easily detected.

TREATMENT.—The indications for treatment are, to keep the shoulder *upwards, outwards, and backwards*. Reduction is generally easy, but its maintenance difficult. Various plans may be resorted to.

If the patient with a broken collar-bone could be kept perfectly still on his back in bed, union would occur without any deformity, at least in a large proportion of cases; and this position is therefore best, even when an apparatus is used, although it is difficult to enforce it.

A simple posterior figure—of 8—of both shoulders, has been recommended, but is irksome, and not always effectual. The same may be said of various forms of dressing on the same principle; the cruciform

dorsal splints, the shoulders being fastened to the two ends of the transverse bar, the yoke splint, etc.

In many cases, a simple sling for the elbow, such as can be easily made with a large handkerchief, so arranged as to carry the elbow well across in front of the chest, and to raise it as much as possible, will meet the indications; at any rate it is often the only available dressing for a time.

More complex forms of the sling have been contrived by Fox. His apparatus consists of a sling to embrace the elbow, lower part of the arm, and nearly all the fore-arm; a stuffed ring or collar for the sound

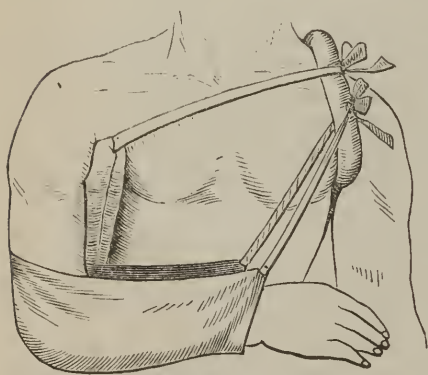


Fig. 6.

shoulder, and a wedge-shaped pad for the axilla. The pad and sling are fastened to the collar by tapes (*Fig. 6*) running across the chest in front and behind, and the hand is supported by a separate sling, made of a strip of bandage or a handkerchief.

Levis's apparatus consists of a pad for the axilla of the injured side, supported by tapes running up to be buckled at the top of the shoulder to a wide band, which runs thence around the back of the neck, and down in front of the sound shoulder, terminating in front

of the corresponding axilla; close to this extremity, it has buckled to it three tapes, two from the anterior corners of the sling, coming round the back, and from its upper part at the back of the arm.

The plan described by M. Mayer for the treatment of fracture of the clavicle, will often be found more available than any other, especially as a temporary expedient. It requires a large handkerchief, or square piece of stuff, two bands or cravats, and in some cases a pad of cotton. The elbow being brought inwards, forwards and upwards, so as to reduce the fracture, and the handkerchief folded into a triangle; the base of this triangle is applied to the front of the arm, and its ends carried round the body to be tied; the angles opposite the base hang down in front, and are now passed up behind the elbow and fore-arm. One of the supplementary bands is now attached to one of these single corners, the other to the other; one passes up on either side of the neck, and both then go down to be attached to the posterior portion of the triangle. The fore-arm and elbow are thus safely and firmly slung in the proper position. When the pad of cotton is employed, it is placed in the axilla of the injured side, and serves to render the bringing in of the elbow more efficient. The foregoing are the principal modifications of the sling as applied to the treatment of fractured clavicle. Every case must, however, be treated for itself. The surgeon must not be satisfied, because he has put on an approved



form of apparatus, that he has done everything, but must try to discover and meet all the indications that may be presented.

Desault's bandage for this injury has become obsolete; it is complex, uncomfortable, no more efficient, and less easily watched than the dressings already mentioned. It consisted of three bandages and a long, wedge-shaped pad; the first bandage kept the pad in place in the axilla; the second compressed the arm to the side, thus carrying the shoulder outwards; and the third, a figure of 8, of three turns, pushed the shoulder upwards, outwards and backwards.

Velpeau's bandage is much simpler, (*Fig. 7.*) and, when properly applied, is very efficient. It is particularly suitable when the patient has to be transported some distance. A piece of linen or flannel rag being laid over the front of the chest, the hand of the injured side is brought up so as to rest upon the sound shoulder; a roller two and a half inches in width is then applied, beginning in the sound axilla, passing across the back to the injured shoulder, down in front of the arm, under the elbow, up behind and over the shoulder, and down across the front of the chest to the original point of starting. This having been several times repeated, turns of the bandage are made horizontally round the body and the arm of the injured side, from below upward, until only the hand and the tip of the shoulder are left uncovered. The arm is thus bound to the trunk, the elbow being carried inwards, forwards, and upwards, so as to force the shoulder outwards, backwards, and upwards; and the whole is secured by inserting pins wherever the turns of the bandage cross one another. Several eminent surgeons have described to the author an apparatus used by them with great success in fractures of the clavicle. It consists of a pad for the axilla, secured in place by an adhesive strip one and a half inches wide and three feet long, the ends of which cross one another over the sound shoulder; and of three double adhesive strips, each four inches wide and four and a half feet long. One of these surrounds the lower third of the arm and the body; the second is applied to the elbow, its ends being carried up to cross one another over the sound shoulder; the third passes round the elbow, the fore-arm, and the body.



Fig. 7.

The hand is supported by a sling. Some cases I have successfully treated with a simple wedge-shaped pad in the axilla of the injured side, confining the arm to the side with adhesive strips, and the hand on the sternum, with the points of the fingers touching the sound clavicle.

Fracture of *both* clavicles occur with extreme rarity, and are very difficult of treatment, mainly because the patients are so apt to object to the necessary restraint. Some modification of Velpeau's bandage,



or of the old plan of Boyer—with a brace buckled round the trunk, and another round the arm, the two being fastened together—or an arrangement of the starched or plaster bandage, will probably afford the best chance; but non-union resulted in three of the six cases on record.

FRACTURES OF THE SCAPULA are only caused by severe blows or by great crushing force; and they are always attended with great contusion. Hence the surgeon's first object must be to allay inflammation. This being accomplished, broad strips of adhesive plaster are first applied, so as to form a cap for the shoulder, and then so as to confine the lower end of the scapula; the arm must be placed at perfect rest, by means of any convenient form of sling.

When the line of fracture runs through the neck of the bone and the base of the coracoid process, the surgeon should place a *small* wedge-shaped pad in the axilla, and put the upper extremity upon an inside angular splint, just as in fracture of the head of the humerus, to be presently described.

FRACTURES OF THE NECK OF THE SCAPULA is a rare accident; it is generally an oblique fracture, detaching the coracoid process and glenoid cavity.

TREATMENT.—The shoulder should be supported by the same sling, bandage and pad that is used for fracture of the clavicle, but, in addition, a short sling from the axilla of the injured to the opposite shoulder, should be used; union takes place in about eight weeks; cathartics, rest in bed, warm fomentations, arnica lotion, &c.

FRACTURE OF THE ACROMION is known by a flattening of the shoulder, because the fractured portion is drawn downwards by the action of the deltoid; by an inequality felt in tracing the spine of the scapula.

TREATMENT.—The same bandages are to be applied as for fracture of the clavicle; great care being taken to raise the elbow thoroughly, so that the head of the humerus may be lifted up against the acromion, and kept in its place; no pad must be placed in the axilla.

FRACTURES OF THE HUMERUS.—These fractures may be caused by any kind of force; by direct violence; by falls on the hand, or by muscular contraction. The bone may be broken at any portion of its length.

FRACTURE OF THE NECK OF THE HUMERUS is caused by great direct violence, and is attended with swelling. It may occur either at the anatomical neck, that is, above the tuberosities, or at the surgical neck, that is, below them.

SYMPTOMS.—The patient is unable to raise the arm; the shoulders seem flattened, but there is no hollow below the acromion, as there is in dislocation. The head of the bone may be felt in its socket, and the broken end of the shaft may be felt projecting either in the axilla, or else in front, near the coracoid process of the scapula. By grasping the elbow and rotating slightly, the fractured shaft may be felt to move independently of the head. Crepitus may also be detected. There is greater mobility in the fracture below the tuberosities, than in that above them.

**TREATMENT.**—When the *head* of the bone is broken, a cap of pasteboard is fitted over the shoulder, or adhesive strips are applied, so as to answer the same purpose. A flat splint is then applied along the inside of the arm, fore-arm, and hand, having an obtuse angle corresponding with the elbow, and another, still more obtuse, with the wrist. The axillary end of this splint should be thickly padded. Permanent stiffening of the joint, in a greater or less degree, follows this injury; it is, therefore, best to use very careful passive motion after the third week.

**FRACTURE OF THE ANATOMICAL NECK** (at the constriction just above the tuberosities) has very much the same symptoms, but the line of the division can be more clearly made out. The treatment called for is the same.

**FRACTURES OF THE SURGICAL NECK OF THE HUMERUS** (between the anatomical neck and the insertion of the pectoralis major, and latissimus dorsi) are somewhat difficult to treat; partly because of the disposition of the muscles to draw the lower fragments inwards, and partly because of the great leverage of the remainder of the limb, with the consequent risk of angular or rotary displacement. The diagnosis is usually easy.

The best plan of treatment is to put the limb upon an inside splint, like that for fracture of the upper end of the bone, except in being most thickly padded at a lower point; a pasteboard, felt, or gutta-percha cap, fitted to the shoulder and upper three-fourths of the arm, being applied, and held in position by the upper turns of the bandage. On an emergency, the arm may be placed akimbo over a pillow, made into a pyramid, the apex of which corresponds to the elbow, and the base to the trunk; or a well padded rectangular splint may be used in the same way. Let it not be forgotten, that the true part to be attended to, is to support the humerus from the axilla to the elbow, and to keep the whole limb steady.

**FRACTURE OF THE HUMERUS** is recognized at a glance, by the limb being bent, shortened, helpless, and by the crepitus.

**TREATMENT.**—The fracture must be reduced by drawing the elbow downwards, whilst the shoulder is steadied. Then the whole limb, from the hand upwards, should be carefully bandaged; then splints should be applied.

The best plan is to use one long one, to steady the whole limb, and two or more short ones applied around the broken bone. The long splint, made either of wood or of very stout pasteboard, should reach from well up in the axilla, along the inside of the arm and fore-arm, to the ends of the fingers, the elbow being bent at a right angle, and the hand semiprone. The short splints should be three in number, and something less than two inches wide; the posterior one should be nearly as long as the back of the upper arm, the outer and anterior ones rather shorter than the distance from the axilla to the bend of the elbow. My objection to the anterior splint, as recommended by some authorities, and still sometimes used, is, that it cannot be so applied as to obtain as much purchase on the upper fragment, as the

inside one affords, and that it holds the hand in the supine position, which is less comfortable than the semiprone. Or we may combine the anterior short splint with the inside angular one, by tacking a piece of pasteboard, of the proper size and shape, to the upper, or arm-portion of the latter. When pasteboard is used, we may follow the outline of the inside angular splint, but make the upper portion, above the angle, a little more than twice the usual width; and then, cutting a slit half way across it, continuous with the upper edge of the fore-arm part, we have a portion which may be bent over so as to fit the front of the arm.

It is easy to see how the same purpose might be answered with a piece of stout wire, bent so as to form a frame for the limb, well wrapped in bandage, and secured like any other splint.

When long splints are for the time unattainable, Boyer's plan may be resorted to; it consists in applying two or three short splints around the arm, and then, the axilla being well padded, confining the whole limb to the body with a bandage. However carefully carried out, this plan would be apt not to prevent displacement of the fragments, the apparatus becoming deranged by the movements of the patient.

Shortening, if marked, must be obviated by the use of an inside splint, with a well padded head going far up into the axilla; or by putting along the back or outside of the arm a special splint, long enough to allow of extending bands, being carried from its upper end beneath the axilla, and from its lower end round the bend of the elbow.

In compound fractures of the arm, where bone is lost to any extent, there is danger of lengthening, so that the fragments will always remain separated by an interval, and the member be rendered nearly or quite useless.

This lengthening may be due to the mere weight of the lower part of the limb, but it may be caused also by injudicious splinting. Caution on this point should always be observed.

FRACTURE OF THE LOWER PORTION OF THE HUMERUS, whether the joint be implicated or not, is apt to prove a troublesome complication. Crepitus is sometimes the only distinct evidence of the nature of this injury, and the diagnosis of its seat and direction can only be made out by exclusion, especially when the swelling is great. The line followed by the fracture varies much in different cases.

So much swelling and inflammation occurs in fractures near the elbow, that the surgeon generally has at first to make free use of local antiphlogistics and anodynes; irrigation, lead-water, alone or combined with laudanum, or ice-water; the patient being placed in bed, and the limb laid easily on a pillow. Purging, arterial sedation, and diaphoresis, may also be called for.

As soon as the inflammation and tenderness have subsided, the arm may be flexed at a right angle, and bound to a well-padded anterior splint. After four or five days the right-angled splint may be exchanged for one with an obtuse angle; and in two or three days



this again may be replaced by an acute-angled one. By some surgeons, a single splint with a changeable angle, regulated by Stromeyer's screw, is preferred; but the angle should never be altered to any marked degree without removing the splint from the limb. A frame of strong wire, bent to the desired angle, wrapped in bandage, has been used as a substitute for the angular wooden splint with advantage by some surgeons.

When both the upper and lower bones, constituting the elbow-joint, are broken, when the inflammation and swelling have run high, and when passive motion is very painful, the surgeon will do better to keep the elbow flexed at a right angle, so that, if ankylosis should ensue, the limb may not be rendered wholly useless, as it would be in the straight position.

FRACTURE OF THE OLECRANON PROCESS OF THE ULNA is rare. It has mostly been observed as the result of direct violence, but there are on record several authentic instances of it from muscular contraction.

The signs of this injury are, inability on the part of the patient to straighten the arm, pain, swelling, and more or less perceptible separation of the fragments, the triceps muscle drawing the upper one away from the lower. Crepitus will sometimes, for an obvious reason, be wanting.

THE TREATMENT consists in placing the arm in the straight position, and fixing the upper fragment against the lower, by means of strips of adhesive plaster applied semi-elliptically above it.

For the purpose of maintaining perfect apposition, I have succeeded well, before applying the elliptical adhesive strips, in applying one long strip about an inch wide and twelve inches long, one half on the upper arm and the other on the lower, with a pouch in the centre, exactly the same as described in fracture of the patella, then the fore-arm having been bandaged, the adhesive strip tightened by twisting, then the roller continued from the fore-arm should be passed round above it, and then back again about the elbow, in the form of a figure 8, and then the whole arm should be bandaged.

In order to keep the arm extended, it should be bound to a straight anterior splint, reaching from a point opposite the axilla to the roots of the fingers; gradually the extension may be relaxed, as the fragments become united. Union is almost certain to be ligamentous, so that the arm fails to regain its strength; and some stiffening of the joint is extremely apt to ensue. Passive motion should be commenced in three weeks.

FRACTURES OF THE BONES OF THE FORE-ARM, below the elbow, are by no means uncommon. Both bones may be crushed at any point; indirect force may cause them to give way, either at the same or at different points in their length, but always somewhere near the middle. When indirect force breaks only one of them, it is the radius which gives way, at or near its lower extremity.

1. *If both bones are broken.*—By reference to the articulated skeleton it will readily be seen that the radius and ulna are exactly on a plane with one another, only when the thumb is upward, and also, that



the interosseous space is greatest in this position. And by mechanical laws it may be shown that the ease and power of pronation and supination, the most important movements of the hand, depend on the maintenance of this space.

Hence, in all cases of fracture of the fore-arm, the proper rule is to keep the hand semiprone.

Pain, loss of power, deformity, abnormal mobility, and crepitation, are the reliable symptoms of an injury of this kind. Two splints should be applied, one on the anterior and the other on the posterior face of the fore-arm; the former extending from the elbow to the fingers, the latter about as long as the radius. The former may be shaped to the outline of the fore-arm and palm, with a block at the lower end, to be grasped in the fingers; the angle at the wrist, causing abduction of the hand, is important when the fragments of the radius show any tendency to overlap one another. Both splints being padded, the padding being thicker along the centre, so as to press into the interosseous space, are applied, and retained by means either of a roller or of broad strips of adhesive plaster.

Should the patient be, from any cause, likely to move the hand from the semiprone position, the anterior splint should be extended up the inside of the upper arm, constituting an inside angular splint; this will effectually prevent any rotation of the fragments. The application of a bandage directly to the fore-arm can do no possible good in these cases, and may do much harm.

2. If one bone is broken, be it the radius or the ulna, at any portion of its shaft, the same treatment as in the last case is proper.

THE RADIUS may be fractured by muscular action; we have seen, in one case, where it had yielded at its neck, while the patient was pulling very hard in driving. But it is far more commonly broken at or near its lower extremity, by indirect violence, as in falls on the hand.

The line of division may run transversely, an inch or so above the joint-end of the bone; or the styloid process of the radius may be broken off, the fracture running obliquely downward into the joint. In the former case, we speak of it as Colles's fracture; Dr. Colles, of Dublin, having first accurately described it; the latter is called Barton's fracture, attention having been called to it by Dr. Barton, of this city.

Whichever of these injuries may be present, the symptoms are almost the same; there is swelling at the back of the wrist, some sinking in at the corresponding point in front, total loss of power in the hand, and pain on pressure or on passive motion.

THE TREATMENT differs slightly in the two cases; extension of the broken bone, by drawing the hand over towards the ulnar side, being much more necessary in the oblique than in the transverse fracture. One splint, such as is known as Bond's, shaped to correspond to the outline of the fore-arm and hand, with a block so placed as to be grasped in the hand, (a firm pad of cotton, or any other suitable or convenient material may be substituted,) is necessary. When strong pasteboard is used, it may be cut into such a shape that the end, being

rolled over, will answer the same purpose as the block. This being duly covered, the arm is bound to it with a roller. When the prominence at the back of the wrist tends to recur, another posterior splint should be added, with a compress so disposed as to make the required pressure.

Although there may be no impairment of either strength or motion left on recovery from these fractures, deformity is very apt to remain—a fact of which the patient should be forewarned.

FRACTURES OF THE CARPAL BONES are always due to direct violence, and may be followed by necrosis.

Perfect rest, with irrigation, should be first applied, and antiphlogistic and anodyne lotions (iced lead-water, muriate of ammonia solution, are the best), should be used for several days; and then, rest having been strictly maintained for a week longer, passive motion may be very cautiously attempted.

The *metacarpal* bones may be broken by a crushing force; or a man strikes a blow with his fist, and one end of a metacarpal bone impinges upon a resisting part, such as the edge of the orbit, when the bone yields at some portion of its length. Usually the lesion is recognized without difficulty.

THE TREATMENT consists in fixing the hand by binding a ball or thick pad in its grasp. Bond's splint answers the purpose very well.

FRACTURES OF THE PHALANGES may be treated best by placing the hand in a hemispherical block of soft wood, with grooves cut in it, so that the fingers may rest comfortably in them; or if plaster of Paris can be had, by mixing a little, letting it nearly set, and then causing the patient to put his hand on it, pressing the fingers down so as to form grooves. By means of adhesive plaster or a roller, the injured bone may be kept accurately in place. Passive motion should be resorted to in the course of the second week.

It sometimes happens that two or more fractures occur at once in the upper extremity; the one furthest from the trunk has then to be first attended to. Thus, I have several times seen the upper part of the humerus and the lower part of the fore-arm broken in the same limb. These cases simply call for an adaptation of the ordinary methods of treatment, by splints of a mixed form; the surgeon can often make such out of heavy binder's-board.

FRACTURE OF THE OS-COCCYGIS may be caused by kicks or falls—it may occur in females who have been pregnant for the first time—after the coccyx has united to the sacrum.

Loose portions should be replaced by introducing the finger within the rectum, and the bowels should be kept relaxed, so that there be no disturbance from impacted fæces.

FRACTURES OF THE FEMUR present so many varieties, the treatment of them has been so annoying, and as it is an injury of great importance, it deserves the greatest consideration; from the shape of this bone, it may be broken at one or more of many points. By far the largest number of cases, however, occur within the middle third of its length, in man; in women, the upper third of the bone gives way more

frequently in proportion. The neck of the femur may be broken by indirect violence, applied either over the trochanter or at the lower end of the bone; the fracture is *intra* or *extra-capsular*, according as it does or does not affect the bone above the annular attachment of the capsule of the hip-joint.

When it runs obliquely, so as to enter the joint only at one portion of its extent, the two forms are combined. The great trochanter may be detached by direct force. The shaft of the femur may give way near the inter-trochanteric line, usually as the result of indirect violence; in a few cases on record, muscular action has caused this fracture. In the middle third of the shaft, fractures may be produced by any form of violence; the line of division is apt to be markedly oblique. At the lower third we may have either a fracture through the lower part of the diaphysis, a separation of the epiphysis, or a breakage, running not only across the bone, but down into the joint; so that there are three fragments. Or one condyle may be broken off by itself.

FRACTURES OF THE NECK OF THE FEMUR, internal or external to the capsular ligament, are not at all uncommon.

The DIAGNOSIS of fractures of the femur, is in general easy, except when the bone is broken very high up, close to or within the joint, when there may be much doubt as to whether the injury is a fracture or a luxation.

The SYMPTOMS common to both forms of injury are shortening, pain, difficulty or loss of motion of the joint, persistent eversion or inversion of the foot. But in fracture the shortening, which may usually be overcome by traction, returns again as soon as the limb is left to itself; while in luxation it does not recur if once corrected. In fracture the foot may be rotated by the surgeon, while in luxation this can be done only to a very small extent, if at all. In fracture crepitus can be elicited, in luxation none. Fracture is much more likely to be present if the patient is old, while dislocation is more common in the young.

FRACTURE INTERNAL TO THE CAPSULAR, is the most common, usually caused by indirect violence, as often happens in slipping off the curb-stone, often produced by falls or blows on the hip. It is rare to find it in persons under forty or fifty, but very common in old people, especially elderly females, because, in addition to the changes which all bones undergo in advanced life, we have thinness of the cortex, sponginess of the cancelli; deficiency of bone earth, loss of elasticity of animal matter; the neck of the femur is much atrophied, shortened, sunk from the oblique to the horizontal position—changes that render fracture liable.

Still, there are cases of this kind which baffle the utmost care and attention of the surgeon, and a decision should never be hastily arrived at.

It is sometimes a matter of great importance to accurately determine the amount of shortening present. The pelvis being placed on an exact plane, and the limbs at equal angles with its transverse axis,

the measuring tape should be carried from the anterior superior spine to the edge of the inner malleolus, passing to the inner side of the patella. The limb supposed to be shortened should be measured first.

The TREATMENT of fractures of the thigh is a subject of the highest importance.

When the bone is broken within the capsule of the hip-joint, the surgeon should warn the patient and his friends, that a complete cure can scarcely be looked for, since bony union seldom, if ever, takes place.

The reason of this want of union appears to be that it is contrary to the provisions of nature for the lymph, which is effused after fracture of any joint whatever, to be converted into bony callus—if it did, the motion of the joint would be perfectly annihilated, besides, this bony union is very unlikely to occur, because of the inadequate nutrition of the upper fragment, which is supplied by the small vessels of the ligamentum teres, because the fracture is separated from the cellular tissue by the capsular ligament, cannot be assisted in a provisional callus, which is secreted by the tissue surrounding the fracture.

In very old persons, the best plan is simply to place them in bed, and keep them as comfortable as possible; apply the counter-extension apparatus, and, if necessary, weights, to keep the limb the same length as its fellow; then encase the whole limb in a roller, from the toe to the umbilicus, then apply a long splint from the axilla to beyond the foot, well padded, over all bony projections, and then a roller—this mode is often highly successful—at the same time guarding against inflammation of the joint, and preventing the occurrence of bed-sores. Sometimes the capsular ligament becomes so thickened as to enable the patient to walk tolerably well, with the aid of a crutch or cane.

Younger persons may be similarly treated, except that it is worth while to use a pasteboard splint moulded to the hip and thigh, in order to retain the joint at most perfect rest and apposition. Bony union is declared by some writers to have occurred even in intra-capsular fractures, and with this treatment above all others. When there exists a strong tendency to shortening, extension and counter-extension should be made by fastening the shoulders and the foot of the injured side to the head and foot of the bed, respectively, or by elevation of the foot of the bed, if the counter-extension apparatus is used.

FRACTURES OF THE GREAT TROCHANTER are very rare.

The fragment is drawn upwards and backwards by the *glutæi* muscles, and the power of eversion of the limb is greatly impaired.

Adhesive strips—elliptical strips—applied as in fracture of the olecranon, should be employed to bear the broken piece down into its position; and a compress and bandage over them may add to their efficiency. The limb should be confined by means of a pasteboard splint, as in the last-mentioned case.

FRACTURES JUST BELOW THE TROCHANTERS are apt to be troublesome, from the tilting up of the upper fragment, by the action of the *psaos magnus* and *iliacus internus* muscles. More or less shortening and



deformity, with permanent lameness, are apt to ensue in these cases. It being impossible, for want of purchase for pressure, to bring the upper fragment down, we have to resort to the expedient of bringing the lower fragment up by means of a double inclined plane. After about three weeks have elapsed, the knee may be gradually lowered, in the hope that the new material may be strong enough to maintain the relation of the fragments. A pasteboard splint, carefully moulded, and secured to the front of the thigh, will add to the safety of this procedure.

Fractures of the middle third of the femurs are apt to be followed by more or less shortening of the limb, due to overlapping of the fragments. Hence, the patient will ever afterwards limp, unless he wears a high-heeled shoe. There is very seldom any loss of power.

For no other injury have so many methods of treatment been proposed as for this; and, perhaps, in none, is an altogether satisfactory result more unfrequent.

The methods employed at the present day may all be divided into two classes, according as they are or are not based on the principle of extension. The former are the most numerous, and the most generally to be relied upon.

My own mode of treatment of these cases is extremely simple: the placing the patient upon a hair or straw mattress—a regular plane; then applying the counter-extension apparatus, as for fracture of the thigh, with sufficient weight to keep both limbs exactly of the same length; then applying the roller from the extremity to the sternum; then a splint, made of gum shellac or gutta-percha, fitted to the nates; then the long splint from the axilla to a few inches beyond the sole of the foot; then another roller; and by raising the foot of the bed, and adding more weight to the counter-extension apparatus, the bone is kept perfectly in apposition.

Another very simple and excellent plan, when the patient is not very restless and uncontrollable, consists in fastening the shoulders to the head of the bed, by means of a folded towel or other band, passing round the back and up in front of the shoulders, by way of the axilla. Extension is now made by hanging a weight, attached to the foot, over the foot of the bed. From five to thirty pounds will be required, according to the age and degree of muscular development of the patient.

Another apparatus on this principle, but making counter-extension from the perineum to the head of the bed, while a piece of gum-elastic is introduced in the extending band; employing also four “coaptation-splints” to surround the thigh, lying parallel with it; maintaining them in place by means of three elastic bands, with buckles.

Another form of these splints, used by the late Dr. Cook, of Philadelphia, is as follows: the connecting bands may be readily made of muslin, flannel or leather; gum-elastic is better when it can be had. Perhaps it need hardly be remarked that the splints should never be placed in immediate contact with the skin.

But the best apparatus for treating fracture of the thigh, by exten-

sion, when surrounding circumstances are favorable, is based upon Desault's plan, as modified by Physick. It consists of two splints of thin board, one reaching from near the axilla to a point a few inches beyond the sole; the other from the perineum to just below the inner malleolus. Near the upper end of the long or outside splint are cut two holes for the attachment of the counter-extending band. The means of making the extension and counter-extension are so various as to call for separate notice presently. Between each splint and the limb, is, of course, an irregular interval, (*Fig. 8*;) these are filled up either by long muslin bags, stuffed with hair or bran, (junk-bags,) or, what is better, with pieces of old flannel, folded in three or four thicknesses. In order to give stability to the apparatus, it has been, and still is with many surgeon's, customary to use a splint-cloth, or piece of muslin, as wide as the length of the inside splint, wrapped around both splints; and the whole is tied with three strips of bandage, passing transversely. But the splint-cloth is useless, the same purpose being served by giving each of the circular strips of bandage a turn round each splint, inclosing also the lining, which is thus kept in place; either of these may be tightened or loosened without destroying the rest. The circular strips will be sure to stretch somewhat during the first twenty-four or forty-eight hours; after that they may be made more secure by tacking them to the edges of the splints. A broader strip is used in the same way to keep the splint and the pelvis together; and still another should confine the trunk to the splint near its upper end.

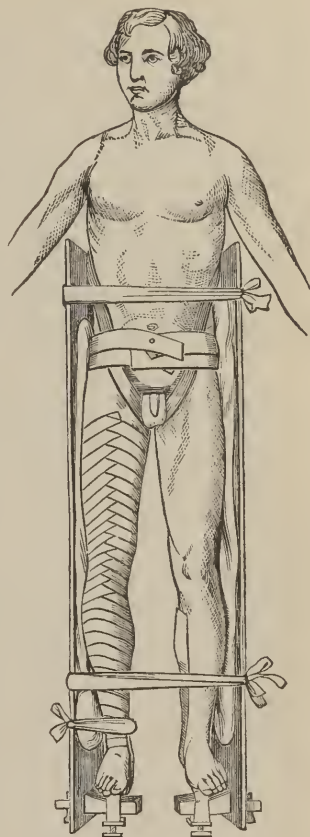


Fig. 8.

Counter-extension may be made by means of a tube of buckskin or muslin, stuffed with hair or bran, with tapes at its extremities, to pass through the holes in the outside splint, and to be tied at its upper end. This is known as Coates' perineal band. If the perineum is daily washed with whiskey, and *carefully dried before the band is re-applied*, there is little or no danger of excoriation.

On an emergency, any band may be used as a temporary substitute; a skein of yarn answers extremely well.

Another method, chiefly advocated by a Philadelphia surgeon, is by means of adhesive plaster. He uses "double anterior and posterior strips, about four inches wide, crossing each other over the trochanter of

the *sound* side, and passing over the pelvis diagonally, anteriorly, and posteriorly, to a little above the crest of the ilium on the side of the fracture; then crossing each other again, and passing through holes in the upper part of the splint, to be tied firmly on its outside. The splint is more nearly Desault's in length, commanding the movements of the pelvis and entire lower extremities, and converting them, as it were, into *one solid piece for the time being.*" Extension may be temporarily made by means of a handkerchief, or strip of bandage tied in a figure of 8, around the dorsum of the foot and back of the heel.

But by far the best method is with adhesive plaster, (*Fig. 9*.) as follows: A strip two inches wide, and twice as long as from the seat of fracture to three inches below the sole of the foot, is stretched as much as possible. A bit of thin wood, four inches in length by three inches in width, is next fitted to the middle of its adhesive surface, and on either side of this a slit is cut lengthwise in the plaster.



Fig. 9.

Through these two slits, a strip of bandage is now passed, so that the bit of wood is between the bandage and the adhesive strip. The two ends of the adhesive strips being now applied up along each side of the limb, with the block of wood two inches from the sole of the foot, will just about reach the seat of fracture. It is a matter of importance that the thin piece of wood just mentioned should be so wide as to take off the pressure of the extending bands where it passes over the malleoli; its long diameter (four inches in the case of an adult male) should correspond to the length of the strip. Three circular strips should be applied, one above and one below the knee, and one just above the ankle, to keep the longitudinal one in place. They should not entirely surround the limb, lest the return of venous blood be impeded. It will now be found that strong extension may be made by pulling on the two ends of the bandage. These are carried over a block placed on the inner side of the long splint, about four inches below the sole; one passes around the end of the splint, and the other through a hole just above it, so that they meet to be tied together. When circumstances permit, it is an excellent plan to arrange a horizontal pulley at the lower end of the outer splint, and to let the extending band play over this; the band itself, or a portion of it, being made of a strong india rubber cord or loop, and fastened at the outside of the splint. In this way we allow for spasm of the muscles, and at the same time keep up an unremitting tension of the limb, and keep it of the proper length.

In the application of this apparatus in the treatment of nearly all fractures of the femur, the adhesive strips should be placed up to within two inches of the fracture. No bandage need be applied but

for the purpose of giving lateral support, preventing displacement, &c., two sand-bags should be used, one extending from the brim of the ilium to the external malleolus, the other from the perineum to the internal malleolus. The amount of weight and the elevation of the foot of the bed must be regulated; the length of the limb must be *normal*, and if the treatment be faithfully carried out, no shortening, not the eighth of an inch, can be detected. It is the most perfect and successful means we possess of treating fracture of the femur, without the possibility of deformity.

One objection holds against all the various forms of screw arrangements for tightening the extending band; it is, that they are no more efficient than other means against the real difficulties of the case, which are—the tenderness of the skin, rendering it unable to bear pressure, and the yielding of the bands employed; at the same time, the power so easily exerted with the screw may cause great suffering to the patient.

The various forms of the inclined plane act on the principle of extension and counter-extension, but less efficiently than those already described; the weight of the body is the counter-extending force in most of them. The single inclined plane is made by fastening together two boards, one vertical, and the other inclined towards it at any suitable angle; the inclined one should be a few inches longer than the lower extremities of the patient, and should join the other a little below its upper end. The patient lying on his back, with the fractured limb placed on the inclined plane, and fastened to the vertical board, the weight of the body will be continually drawing down the upper fragment; the surface on which the limb rests should, of course, be padded.

The double inclined plane is much more complex. It consists of two boards, fastened together at an angle to fit that of the knee; the foot is supported and steadied by another piece of board corresponding to its sole. Usually, sides are added to each portion, either nailed on or hinged; and the leg and thigh pieces are also hinged together, being kept at any desired angle by means of a rackwork.

It is evident that, in the machine, the counter-extension is made by the weight of the body, the extension by the pressure of the upper part of the leg-piece against the corresponding part of the limb. But here, as in the single inclined plane, the tendency will be for the patient to work along up the inclined surface with his buttocks, so as to defeat the intention of the surgeon.

A new form of the inclined plane, which has gained much favor, has not long since been introduced by Dr. Smith. It consists of a rectangular frame of stout iron wire, about three inches wide at one end, and two and a-half or two and three-quarters at the other; it is intended to reach from a little above the spine of the ilium, to a point just beyond the toes, and should, therefore, be about three feet eight inches long, for a man of ordinary stature. Cross-pieces of wire are firmly clinched to the side-pieces, at intervals of about eight inches. There are also two double hooks of wire, each of which is adapted to clip the side wires firmly, and has a loop above like a figure of 8,



forming an eye for the attachment of a suspending cord. A small pulley and a tent-block are useful, but not indispensable to the apparatus.

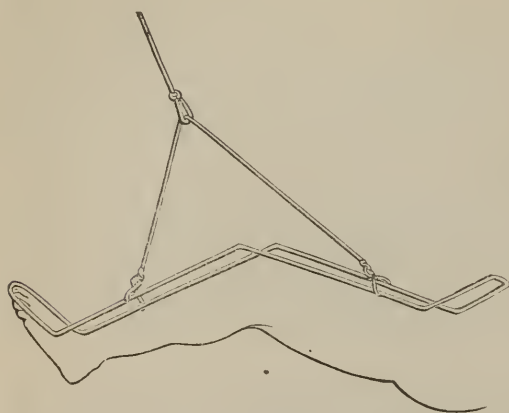


Fig. 10.

When the splint (Fig. 10) is to be applied, it is bent so as to correspond with the front of the limb when the hip, knee and ankle, are somewhat flexed; it is then wrapped in the turns of a bandage, and the limb bound to its under surface. The double hooks are now made a catch; the splint at about the middle of the thigh and leg, and a cord attached to both; to the middle of this cord is tied the end of another, drove through the tent-block and passing over the pulley, which is fastened to the ceiling. Extension is made in proportion to the degree of slant assumed by this latter cord, when the limb is thus suspended; the weight of the body is the counter-extending force. If the extension is not made properly, or if the splint presses too much or too little, above or below, the points of the attachment of the suspending cord should be changed; and the efficiency of the apparatus may be enhanced by raising the foot of the bed with blocks.

The simplicity and efficiency of this splint have led to its extensive use in practice in this country. It may be rendered still more secure by adding a starched or dextrinated bandage to the one which immediately surrounds the splint and limb.

At a late stage of the treatment, when union has duly taken place, and the callus simply needs support, some form of the immovable apparatus may be found useful. Thus, a starched or plaster of Paris bandage, carefully applied about the fourth or fifth week, will enable the patient to get out of bed, and to move about a little with crutches.

Fractures of *both* thighs should be treated in the same way, as when only one limb is injured. If the patient is a child, or a restless and unmanageable adult, an anterior splint of pasteboard should be applied to each thigh, at about the tenth day; the long splints should be extended up into the axilla, and furnished with crutch-heads, while a cross-bar should be arranged between them at the lower ends.

FRACTURE OF THE CONDYLES OF THE FEMUR into the knee joint, mostly happens to old persons, and frequently proves fatal.

If much comminuted, or if compound, amputation may be necessary, otherwise the limb should be placed straight, so that the head of the tibia may keep the fractured parts in their place; irrigation, evaporating lotions should be used to keep down inflammation, afterwards a

pasteboard splint. Passive motion should be commenced in five weeks.

When the lower end of the femur is fractured obliquely and forwards, the sharp end of the upper fragment is apt to pierce the extensor muscles, and the lower fragment to be dragged down into the ham of the gastrocnemius muscle.

TREATMENT.—Firm extension, with the wire splint, the limb bent to relax the gastrocnemius.

FRACTURES OF THE PATELLA are not very common. When vertical or longitudinal, (the rarest form,) they are always due to direct violence, and are chiefly serious on account of inflammation likely to be set up in the joint.

The TREATMENT has reference wholly to this dangerous sequence.

Transverse fractures of the patella may be caused by force directly applied, such as a blow; or the bone may be broken by muscular contraction, being bent as a lever over the lower anterior edge of the femur. More or less separation of the fragments immediately takes place, and persists or even increases afterwards; on account of the difficulty of overcoming this, union is apt to be ligamentous only.

As a matter of course, the muscles should first be relaxed by straightening the limb and flexing the thigh on the trunk, and then the upper fragment should be drawn down into the closest possible proximity to the lower.

Various plans have been proposed for retaining it thus. The plan most simple and available is as follows:

A strip of adhesive plaster, about two feet long, is laid on the anterior surface of the leg (*Fig. 11*) and thigh, about six inches being lifted up into a loop in front of the knee. A bandage is now firmly

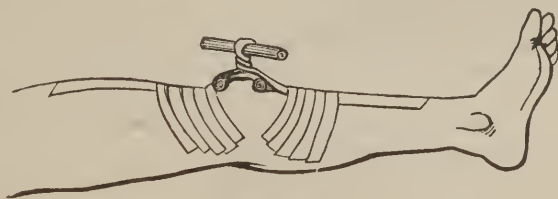


Fig. 11.

applied from the toes up, leaving the loop, of course, free. The upper fragment being now drawn down as much as possible, a firm transverse compress is laid just above it, and the loop twisted by means of a bit of stick, so as to bear upon the fragment through the compress. The same as described under fracture of olceranon.

A straight posterior splint completes the apparatus.

Malgaigne's hooks—a pair of steel plates sliding upon one another, and recurved at their extremities into two opposing pairs of sharp hooks, intended to catch the upper and lower edges of the fragments; the hooks being forced together by a screw playing longitudinally above the plates, are more formidable in appearance than in reality. I can decidedly recommend their use, from experience. Adhesive

strips may be applied in a crescentric form, above the upper fragment; or, as recommended by Sir A. Cooper, longitudinal tapes may be arranged along the sides of the knee, and circular bandages above and below; the latter being then drawn together by turning over the end of the former and tying them. Lonsdale's instrument is complicated and expensive.

## FRACTURES OF THE BONES OF THE LEG.

FRACTURES OF THE BONES OF THE LEG are extremely common, and may be caused by any form of external violence. The diagnosis is usually a matter of no difficulty. Shortening is not often present in any marked degree, but it sometimes demands special attention.

It is in these cases that the *fracture-box* has been most extensively used. This consists (*Fig. 12*) of a bottom, two sides hinged or nailed to it, and a foot-piece fastened vertically or nearly so; the latter projecting up above the level of the toes. A pillow laid in the box gives equable support to the limb, and the foot is steadied by fastening it (*Fig. 13*) to the foot-board.

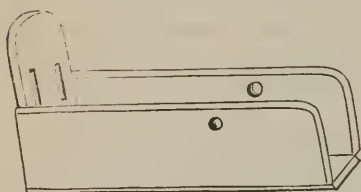


Fig. 12.



Fig. 13.

Counter-extension may be made from the sides of the box, by adhesive plaster, if necessary.

By a little mechanical ingenuity, the fracture-box may be so suspended to a stout frame placed in the bed, as to enable the patient to move in bed somewhat without disturbing the

fragments in their relation to one another; and the tedium of his confinement will thus be greatly lessened.

Some surgeons employ lateral splints of pasteboard, kept in place either by broad strips of adhesive plaster, or by a roller; if the latter, it should commence at the toes.

When *both bones are broken low down*, there is usually what is called "Potts' fracture;" the fibula yielding about three inches above the joint, and the inner malleolus, or the whole lower extremity of the tibia being also separated. If the fibula alone is broken, with rupture of the internal lateral ligament of the ankle, the deformity and other symptoms will be much the same.

The treatment consists in placing the foot in a fracture-box, and using applications to allay inflammation of the joint, for about two weeks; at the end of that time Dupuytren's apparatus should be put on; a splint three or four inches wide, extending from the knee three inches beyond the sole of the foot, with a thick wedge-shaped pad, whose base is placed just above the malleolus, bound firmly to the

inner side of the leg. No attempt at walking should be made by the patient for at least six weeks. The jointed splint of Dr. Smith answers extremely well for the treatment of these fractures of the leg low down. Its *modus operandi* may be best understood by examining it; it is kept for sale by most instrument-makers.

FRACTURE OF THE OS-CALCIS may be caused by the weight of the body suddenly and violently brought to bear upon the heel. It can hardly fail to be recognized; the treatment consists in extending the foot as much as possible, bringing down the fragment by means of adhesive strips, and placing a pasteboard splint along the front of the leg and dorsum of the foot. A roller firmly applied from the toes upward, completes the dressing.

FRACTURES OF THE METATARSAL AND PHALANGEAL BONES, when not attended with such injury of the soft parts as to require amputation, are usually recognized mainly by the crepitus of handling. The swelling soon masks even this. Negative treatment only is necessary; when union is nearly complete, a firmly applied bandage will enable the patient to make cautious attempts at walking.

## DISEASES OF JOINTS.

The diseases of joints are divided into two grand divisions.

1. Disease of the soft parts.
2. Diseases of the cartilaginous and bony tissue.

All forms of disease which occur in the joints are either *rheumatic*; *scrofulous*, or *tuberculous*; *syphilitic*; *scorbutic*; *mercurial*; *cancerous*, &c., or simply *inflammatory*.

EXTRA-CAPSULAR INFLAMMATION manifests itself by stiffness, pain, irregular swelling, without effusion into the joint. This is generally a trivial affection and requires little treatment but *arnica*, *rest*, and free secretions.

PURE CAPSULAR INFLAMMATION.—This is the acute inflammation of joints, *synovitis* of the books, and may be occasioned by both *local* and *constitutional* causes, as injuries, sprains, rheumatism, gout, morbid state of the system, produced by syphilis, mercury, &c.

These causes produce a species of inflammation which leads to internal effusion.

This is a serious lesion.

SPECIFIC INFLAMMATION.—This comes on accidentally, is characterized by an abundant effusion, with little pain in the first stage, but acquires all the characteristics of acute arthritis in the second.

PURE SYNOVIAL INFLAMMATION.—This exists in two forms, *acute* and *chronic*; in the acute form we have dropsy of the joints from inflammation of the synovial membrane and subsequent effusion. It is essentially characterised by a serous effusion in the acute form, without pain or visible thickening of the articular coverings, slightly hindering the movement of the joint.

In the chronic form, which is often a consecutive disease, it is an elastic, thickened enlargement, sometimes rolling under the finger, like a foreign body; the joint may acquire an enormous volume without



any hindrance to locomotion. It is generally serious from its obstinacy, sometimes resisting our best efforts.

The swelling is peculiar, and distinctive of the disease.

CARTILAGINOUS INFLAMMATION is generally announced by a dull pain, when the joint is at rest; and acute, intolerable pain is excited by the smallest motion.

The effusion, swelling, &c., secondary. It may terminate in an ulceration of the articular cartilages, and of the synovial membranes investing them. There may be a mechanical affection, embracing ulceration and contusion of the cartilages, and ulceration of the synovial membrane; or from the pressure of the cartilaginous surfaces on each other; or a crushing, washing, or excoriation of the organic plates. It comes on suddenly, and is announced by a cracking sound and acute pain; which ceases when the limb is still.

PROGNOSIS.—Inflammation of the joints, with its disastrous sequel, is amenable to good judicious treatment. The dangers to life, in any particular case, will be proportioned to the severity of the symptoms; typhoid symptoms indicate danger.

MORBID ANATOMY.—In slight cases, the synovial membranes merely reddened, and the joint contains a quantity of turbid serum. In severe cases the membrane suppurates rapidly; the cartilage ulcerates. In very chronic cases, the membrane becomes thickened, pulpy, vascular, granulations form on their surface, and project like fringes into the cavity of the joint, cartilages give way, and the joint may be irreparably lost.

TREATMENT.—The treatment of inflammation of the joints, in all its forms, and under all its sequelæ, is a most important point to the surgeon.

If it arise from an injury, the whole limb must be kept confined on a splint, so as to keep it at perfect rest—perfectly motionless. This is indispensable. A piece of leather or gutta-percha or shellac cloth, softened with warm water, and adapted to the limb, is highly advantageous; put the joint in the most favorable position for rest.

Resort at once to irrigation as the best mode of keeping down local inflammation; if this is not convenient, ice, evaporating lotions, hop, poppy, chamomile, or stramonium fomentations. Control any fever with a combination of aconite, veratrum and aselepin, giving free anodynes at bed-time, cypripedin and hyosciamus. Stimulate the liver with podophyllin, leptandrin and euonymin; give an alcoholic vapor bath every other day, sponging frequently with the alkaline wash.

Place the patient on a well-regulated, nutritious diet, avoiding fruits, acids, fermented liquors, and, if recovery is not rapid, give acetate of potash, alteratives, cinchona, phosphorus.

IF IT IS IDENTIFIED WITH RHEUMATISM, if we have the sediment in the urine, acid perspiration, if there are several joints affected, if there is a manifest translation of the disease from one part to another, then a free use of the alkalies, internally and locally, as baths; alternate this with

R̄.—Colchicum vin. rad., ʒi;  
Sulphate of quinine, gr. xxx.—M.

Half-teaspoonful doses every three hours, until there is a free action of the bowels. Podophyllin, leptandrin and cimicifugin, to stimulate the biliary and other secretions; a perfect elimination of the rheumatic poisons, *lactic acid in the blood*; establishing convalescence upon iodide potass, and comp. syr. stillingia. Baths of the strumatic salts.

If there is a tendency to *gout*, and the patient complains of grinding, excruciating pains in the small bones, as if the joints were torn asunder, colchicum, veratrum, quinine, are the remedies.

In *syphilitic cases*, alteratives, gold, cinchona, irisin, are appropriate. Baths of nitro-muriatic acid, iodine, sulphur, strumatic salts, &c.

In *mercurial cases*, iodine, in the form of iodide potassium.

The *chronic* form of *synovitis* is frequently a sequel of the acute.

TREATMENT.—The most prominent indications are, to arrest any constitutional disorder or taint, to reduce inflammation, to produce absorption of the effusion, thickening, and to restore the part to its proper use. If there is a tendency to gout, rheumatism, scrofula, syphilis, mercury, rectify it by the appropriate remedies, and enjoining such regimen as will promote the general health and vigor of the system.

*Compression* is a resource of great power. Apply a bandage firmly over the affected part; begin the application below the joint, and extend a few inches above it.

Counter-irritants of some description should be used, at the same time Firminch's method; after which the oils of stillingia, lobelia and cajeput; or turpentine, croton oil, and oil capsicum, &c.; supposing the inflammation has been subdued, and the joint is left stiff, a process of very gradual extension should be set about, by means of friction, splints, electricity, &c. But the greatest care should be taken not to set up a fresh inflammation.

ABSCESSES IN JOINTS.—If, after a case of inflammation in a joint—*acute or chronic synovitis*—the joint becomes very much distended, with constant, unmitigated pain, great constitutional disturbance, supuration of the synovial cavity may be expected. Under such circumstances, puncturing with a grooved needle, and examining the fluid that exudes. If it is serum, several punctures, and the application of an exhausting-glass will relieve considerably.

If it is pus, a free opening should be made in the most depending position, so that the matter may run out easily; the ley poultice should be applied, and the limb be placed upon a splint. Then a thorough course of alteratives, tonics, most nutritious diet should be resorted to, and a cure effected by ankylosis.

In the treatment of all forms of disease in joints, rest is of vital importance. By rest, the progress of disease is frequently arrested.

ULCERATION OF CARTILAGE causes irregular disorganization of a joint, and leads to caries of the heads of the affected bones.

In all these affections our chief dependence is *perfect rest*, by means of splints and bandages, pure air, good diet, cinchona, C. tinct. tamarac.

Give an anti-scrofulous course of treatment, promote nutrition, &c. These should be rigidly persevered with.

It is well to bear in mind, however, the difference of the three principal diseases of joints, as regards their chief symptoms,—*pain* and *swelling*.

The *pain* is not very severe in *chronic synovitis*; it usually increases the first two weeks, and then declines; and it is not aggravated by motion, or by pressure of the articular surfaces against each other.

In *ulceration* of the *cartilage* the *pain* is very severe, *continuous*, *exhausting*, increasing as the disease advances, becoming greater after the occurrence of the swelling; it is also attended with sympathetic pain in some other part of the limb; is always aggravated by motion.

The *swelling* in *chronic synovitis* comes on in the course of a few days. It fluctuates freely, and alters the form of the joint. In the other affections, the swelling does not come on for weeks or months; it does not alter the shape of the joint; but, as it depends on a general infiltration of the tissues around the articular extremities, it seems as though it was caused by enlargement of the bones; the skin is also free from redness, hence the term *white swelling*, by which these affections are commonly known.

### SCROFULOUS INFLAMMATION OF JOINTS.

A scrofulous synovitis is, in its first characteristics, not essentially distinct from any other slow inflammation of that tissue, but the difference lies in the indisposition to further development. If there has been a breach of tissue from a wound, the gap must be filled up by cell generation; which, in such case, is called granulation. As long as the patient remains in good health, the older cells, that is, those of the deeper layers of this formation, assume the fusiform shape, and gradually form into the fibrous material which forms the scar; but when the health begins to flag, the granulations do not change in that manner, but cells remain, generally round, increased unduly, and form those large, flabby, exuberant growths, which require repression, caustic, or other means to stimulate them to healthy action, and to keep down their excessive generative tendency.

On this principle we distinguish between the healthy and strumous synovitis. In the former the membrane and sub-synovial areolar tissue generate cells, which, if the constitution be good, form new fibrous tissue, causing some thickening, and only to a slight degree interfering with the action of the joint. In the latter, cells are also generated, but, instead of making fibrous tissue, they remain in the form of granulative tissue, and produce that form of disease known as scrofulous synovitis.

*Certain joints* are more frequently attacked by disease of this species than others; for example, the frequency of disease in the knee and hip joints, and the very rare occurrence of it in the jaw, heads of the ribs, with the vertebræ. The cause of this has not been satisfactorily explained.

In connection with strumous inflammation of joints, there are two considerations which solicit our attention at the start.



What are the circumstances which would lead us to regard the disease as strumous when brought to the bed-side of the patient?

In what condition will we find the structure, the bone, cartilages, synovial membranes, of a joint, provided the disease be strumous?

With reference to the first query, we have no local symptoms nor precise condition that would enable us to pronounce the disease as strumous; we must look elsewhere; the *age*, the *aspect*, the *white-cell* condition of the blood of the patient; the past or present existence of strumous disease, as enlargement and suppuration of the cervical glands—*scrofulous ophthalmia*; tubercles in the lungs, and other organs. Any of these, especially if actually co-existent, would lead us to pronounce the disease as scrofulous. These cases, however, are often obscure, and lead to an erroneous conclusion.

What is the state of the joint invaded by strumous disease?

The end of the bone is softened from absorption of its earthy matter, and its cancelli are filled with tubercular deposit. The early stages of these affections are most amenable to treatment; the morbid impairment of the bone may be arrested and its integrity restored.

The incipient symptoms are, increased vascularity, low inflammation of bone, which is followed by expansion of the cancellous texture and absorption of the earthy matter.

Ultimately, in the bone thus degenerated, tubercle is deposited. The cartilages, synovial membrane, and other parts of the joint, are in a state of low inflammation, which has commenced in the bone or synovial membrane itself, and which, if permitted to advance, is followed by the usual consequences—exudations, thickening, ulceration, suppuration.

There is only one disease that strumous synovitis bears any analogy to, and that is the rheumatic form already spoken of.

The diagnosis is not difficult when rheumatic fever is present; of course, it is very obvious, but when it is not, the implication of other joints, the cause, the symptoms of the attack, the history of the case, will generally guide to a right conclusion—the *implication* of other joints—because it is rare to find rheumatism affecting one joint only; it attacks two or three simultaneously, or flies about from one to another. The cause and symptoms of the attack, because we almost invariably find the patient has been exposed to cold or dampness, and because muscular pains are generally precursory to the articular inflammation. *Rheumatic* synovitis is usually marked with pain in one particular spot; the patient does not complain of general pain in the joint, but points to one special locality, and describes it as the seat of all his suffering. *Articular* rheumatism is also intractable, leaving one joint and assailing another, or darting and recurring in the same joint.

Joints are attacked by rheumatic inflammation in two ways; either their fibrous or synovial structures suffer.

The consequences of rheumatic inflammation may be serious, as effusion, thickening, dislocation, destruction of ligaments and ankylosis.

The distinction between this and scrofulous synovitis is apparent.



*In all scrofulous diseases of joints*, secure the most *perfect rest* by bandages and splints, but confine the patient no more to the house than is absolutely necessary, or the health will suffer, and the local disease will be aggravated. Enforce the constitutional treatment of scrofula, then resort to counter-irritation of the most powerful description—the irritating plaster kept constantly and perseveringly applied, in the absence of which the actual cautery, keeping up a free discharge from the affected joint.

But if the case is mild, and our object is only to produce absorption, then tinct. iodine, stimulating liniments, packs, fomentations, the veratrin ointment, the douche might be useful.

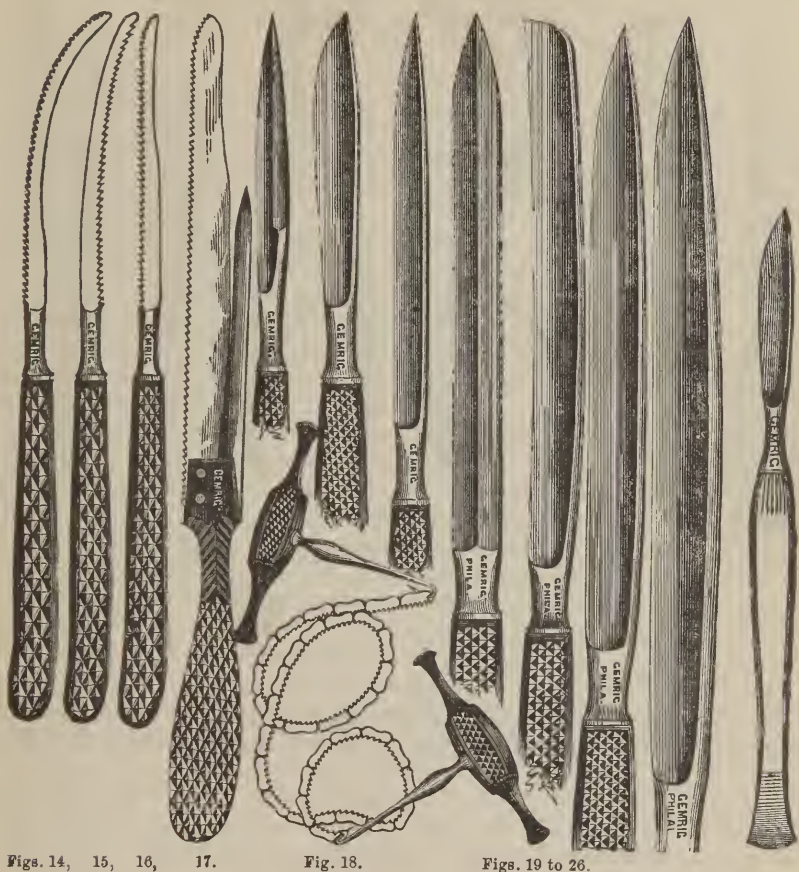
HYSTERICAL DISEASE OF THE JOINTS, having an analogy to the genuine affection, usually occurs in young females from 15 to 25. The traces of hysteria are always palpable.

With regard to the treatment of *diseased cartilages*, they should, if possible, be removed by subcutaneous incision. The separation of diseased cartilage from the extremity of the bone, the shedding or exfoliated portions, keep constant irritation within the joint, and the propriety of deep, free, subcutaneous incisions, along the side, in the long axis of the limb, to allow the diseased products to escape, is proper and good treatment; important vessels must be avoided; the wound should be kept open; encourage suppuration, and injections of permanganate of potash should be used.

It will also be requisite, occasionally, to use excision in the treatment of strumous disease of joints; indeed, the excision or removal of diseased articulating surfaces, may be ranked among the greatest triumphs of modern surgery. Instead of leaving the disease to wear out the constitution, or amputating the limb, and thereby crippling the patient for life, the joint is boldly laid open, the diseased parts excised, and the wound is allowed to heal by granulations, taking care to leave the limb in the most favorable position for its after use, when ankylosis has taken place. It is impossible to speak too strenuously on the advantages of this operation, or the quantity of bone that should be removed.

Great benefit is derived from exposing and laying open all the affected tissues, so that nature is not obliged to make sinuses and ulceration of the soft parts. It is not the quantity of bone that is cut away, but by exposing a large surface, we allow the diseased tissues to come away, instead of burrowing through the soft parts. No more should be removed than is already destroyed by disease, and we find that this is generally confined to the articular surfaces alone, of the bones implicated. If we remove beyond this, we do no good, but, on the contrary, detach muscles which would have been otherwise of great service to the new joint, and thereby render it less capable of natural and useful motion.

The following are a few of the instruments which are of great utility in the excision of joints:



Figs. 14, 15, 16, 17.

Fig. 18.

Figs. 19 to 26.

Figures 14 to 17—varieties of metacarpal saws. Fig. 18—a chain saw. Figures 19 to 26—scalpels and catlins for the various operations.

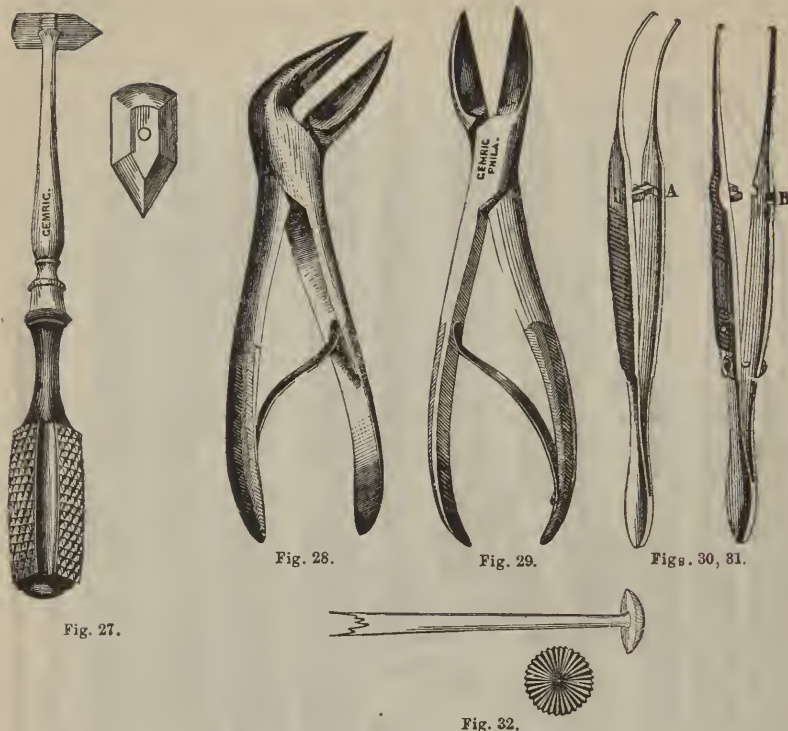


Fig. 27—a steel hammer or mallet. Figs. 28 and 29—bone nippers. Figs. 30 and 31—spring forceps. Fig. 32—mushroom and circular saw.

### HIP DISEASE.—MORBUS COXARIUS.

This joint is extremely liable to scrofulous inflammation, and there are certain peculiarities, both in the symptoms and the disease, which renders this affection one of the most important in surgery. In scrofulous inflammation in this joint, we have ulceration of the cartilage, and of the head of the femur.

**SYMPTOMS.**—This disease begins with slight, occasional pain, and more or less lameness of gait. As it advances, the pain becomes very excruciating in cases of ulceration of cartilage, whilst in the stages of scrofulous caries, it is comparatively trifling, but in both forms, it is chiefly felt in the knee, and this pain in the knee may be the only symptom complained of; there may be even some swelling there.

The best mode of settling the point is, if the femur is jerked against the acetabulum, great pain will be felt in the hip, and the pain in the knee will be greatly aggravated. There is also tenderness in the groin, behind the great trochanter, and frequently swelling of the

inguinal glands, and the nates of the affected side become wasted and flabby.

But the great characteristics of hip disease are certain alterations that occur in the limb. In the premonitory stage, the limb acquires an apparent increase of length, which is accounted for in various ways.

One opinion is, that it is produced by effusion into the cavity of the joint, and consequently protrusion of the limb outwards and downwards; others imagine that there is a spasmodic action of the *glutæi*, and rotator muscles, by which the limb is drawn away from its fellow; others explain the lengthening of the diseased limb, by stating that, when the patient stands upright, he rests his whole body on the sound limb, and stretches out the other in advance, merely to steady himself; that in consequence of this repeated attitude, the pelvis on the diseased side becomes habitually depressed.

But, whatever explanation is adopted, the lengthening is more apparent than real, because the distance from the spine of the ilium is the same on both sides.

**DIAGNOSIS.**—Scrofulous disease of the hip joint is easily recognized. The great pain caused by pressing the femur against the acetabulum will distinguish it from sciatica, and it is distinguished from pure synovial inflammation of the hip-joint, by the fact, that the pain in the latter case is referred to the upper and inner part of the thigh, and that is not aggravated by standing on the limb.

**TREATMENT.**—At whatever stage the patient comes under treatment, perfect rest is of the utmost service, and for effecting this, and also removing the pressure of the head of the femur upon the acetabulum, the method of extension and counter-extension, by adhesive strips and weights, as recommended for fracture of the femur, should be daily applied; by this means we have perfect rest, and the separation of two inflamed or ulcerated surfaces; this is invariably attended with benefit. Then, locally, dry cups; or apply Firminch's method, and then the irritating plaster kept on continuously. Iodine is too superficial. I prefer the actual cautery; keep up a free, continuous discharge.

I am partial to veratrin; it is excellent to produce absorption. A piece of veratrin ointment, about the size of a bean, rubbed in about three times daily. If it produces violent itching, use a little glycerine.

Having thus attended to the preliminary local treatment, our constitutional measures would be as follows: give the patient an emetic; twice a week, of the comp. powder of lobelia; stimulate all the secretions.

Our best constitutional treatment is that which we have laid down; for scrofula, iodide potass, stillingia, irisin, gold, iron, tonics, phosphorus, cod-liver oil, &c., &c., agents calculated to change the abnormal molecular condition of the blood, which is the cause of the disease. Thorough hygiene, fresh air, the best of diet, are indispensable to success.

We depend almost exclusively on constitutional measures. If an abscess form, it should be freely laid open, so that it should heal from



the bottom, and so free that no pressure need be used to aid its escape. All rough manipulations should be carefully avoided.

If the orifice be disposed to heal prematurely, it should be prevented by the occasional application of the caustic potash, or a little podophyllin and sanguinarin; care being taken that they do not enter the sinus itself, otherwise the black salve is all that is required.

Excision of the head of the femur has been attended with great success in the cure of this affection.

### SCROFULOUS DISEASE OF KNEE, OR WHITE SWELLING.

This is an obstinate, painful disease, peculiar chiefly to the knee, although we see it in the wrist and hip, we meet it in a low, mild form, or more active and exceedingly painful.

Its cause is the peculiar condition of the blood, characteristic of scrofula—its exciting cause, cold or injuries.

SYMPTOMS.—In scrofulous inflammation at the knee-joint, the pain is felt deep in the joint; move the limb and it is intolerable. As it progresses there is swelling, but no redness, but a shining whiteness, with great hardness. It slowly increases till the swelling becomes considerable, the distress great, and suppuration takes place. There is a discharge of matter from several openings.

The limb wastes, becomes bent, and when exudations fill the joint, dislocation of the bone may take place, either causing permanent dislocation or ankylosis; fleshy excrescences sprout out from the ulcers, the bone takes on scrofulous caries, or necrosis. There is great constitutional disturbance.

TREATMENT.—The treatment of this disease has been attended with but poor success, until the American Reformed Profession laid down their principles of treatment, which have met with unparalleled success in these affections.

The first and most pressing indication is *perfect rest*—this is of vital importance.

Then local anodyne, hot baths, two or three times daily, continued for two hours at a time; these baths may be made of herbs, as hops, tansy, wormwood, cicuta, stramonium, belladonna, strumatic salts, &c. This must be persevered with, and if the skin does not perspire, apply, after the steaming or bathing with the above, the ordinary ley poultice.

But the best course to pursue, after the steaming, is the use of some discutient, as the veratrin ointment, or a mixture of oils of stillingia, hemlock, lobelia, and sassafras; follow the application of this with compression—compression can be performed, either with adhesive strips, lead plaster and bandage; or it is well to use compression in all its stages, and, underneath, the iodide of lead is a most valuable remedy.

Blisters and setons are not used by our profession, but some members resort to the moxa or actual cautery.

I am partial to the use of the irritating plaster above and below

the seat of the disease, leaving the affected part to be treated in the manner above stated.

This course of local treatment affords prompt and immediate relief. The occasional use of the ley poultice is extremely beneficial, lessening the inflammation of the part, and, if suppuration threatens, aids it.

If suppuration has occurred, it should be treated with the usual remedies, and any enlargement or thickening should be removed by the appropriate means, as irrigation, compression, friction, galvanism, with discutients, as iodide potass in stramonium ointment.

Constitutional treatment must be rigidly enforced, the various alteratives, C. syr. stillingia, with iodide of potassium, iodide of iron, irisin, corydalis, phosphates, gold, brandy, quinine and iron.

The alkaline solutions of the sulphites of soda, &c., have been used here with most decided results.

Iron, in some form, is always indicated—if there is constipation, Vallet's mass and strychnine. An active liver is indispensable; for this purpose give podophyllin twice a week—leptandrin and euonymin; and the very moment an impression is made, gentle exercise in the open air, nutritious diet, and everything should be done calculated to give stamina to the constitution.

## WOUNDS OF JOINTS.

A joint may be known to be wounded by the escape of synovia in the form of small oily globules.

TREATMENT.—The object is to control inflammation by arterial sedatives, diaphoretics, and locally by means of irrigation. Seal the wound, if possible, with gauze and collodion.

## ANCHYLOSIS.

Anchylosis or immobility is a very frequent consequence of injuries and diseases of joints.

It may be *true* or *false*.

*True* or *bony*, when the lymph, that is effused after an injury or destruction of cartilage, ossifies—*spurious*, when it depends on the thickening and deposits into the synovial membrane and ligaments, and rigidity of the muscles.

The extensor muscles are apt, in all cases where the joint is diseased, to become paralyzed and wasted, and the flexor muscles to fall into a state of atrophy, becoming short, inextensible, and very probably dislocating the joint, by their continued traction.

There is also ligamentous anchylosis; the union of the two articular surfaces by ligaments; and this is an occasional consequence of compound dislocation, and of ulceration of cartilage.

One very frequent cause of anchylosis, is the bony immobility of the articulations, consequently it is dangerous to confine for months, in an immovable apparatus, the articulations of any joints.

In all cases, if possible, the joint should be left as free as possible, to perform movements sufficient to induce the synovial secretion, and

in all cases passive motion should be commenced early, as soon as the callus is formed.

Sometimes it is desirable to obtain ankylosis, especially in diseased joints, where the articulating extremities have been destroyed, and nothing can be obtained but a stiff joint.

**TREATMENT.**—Friction, shampooing, kneading, galvanism over the extensor muscles, vapor bath, local steam bath, passive motion. If there is contraction, or true ankylosis, use forced rupture by breaking up the callus, first having placed the patient under the influence of an anæsthetic. The force to be employed must be regulated entirely by the amount of the resistance. A great degree of flexion is not to be desired at once; and the more cautiously and patiently the limb is managed, the less danger of violent reaction, and the greater the probability of success. When managed with due care, the inflammation set up is very trifling, and, indeed, seldom sufficient to retard a cure.

Very frequently no reaction is perceptible.

Every two or three days the patient is subjected again to the same treatment.

Sometimes two or three months are necessary to restore the functions of the joint sufficiently, but more frequently much less time is required. The callus must be broken up, passive motion perseveringly executed, until the integrity of the joint is restored. It is absolutely requisite that the patient should exhibit no rheumatic taint, if such, it must be corrected by alkali.

In these cases I make it a rule, before operating, to give sufficient alkali to render the urine normal or slightly alkaline.

From the want of the exercise of the joint, the limb is usually much smaller than the sound one.

Sometimes almost total atrophy of the muscles is the consequence, but a short time is requisite to restore them to their original volume.

The after-treatment is based on two indications, the first to preserve the degree of extension obtained.

This is best fulfilled by the use of a suitable apparatus, as illustrated by the following cuts, (*Figs. 33, 34, 35,*) which are well adapted for the after-treatment of forced rupture at the elbow-joint—it can be graduated to any desired angle:

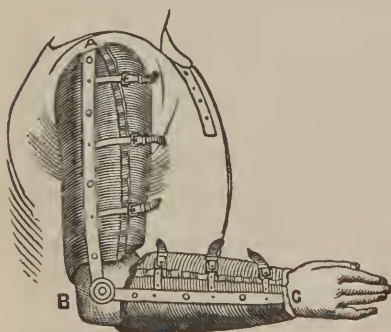


Fig. 33.

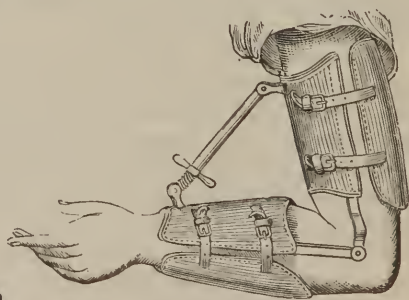


Fig. 34.

In ankylosis at the knee-joint treated in the same manner, the annexed wood-cut exhibits an apparatus (*Fig. 36*) which is very useful to maintain the degree of flexion desired. A capital apparatus, also, for treating rupture of tendo-Achillis.

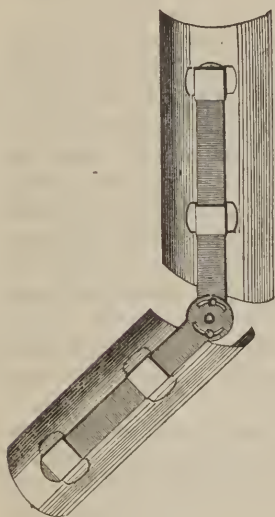


Fig. 35.

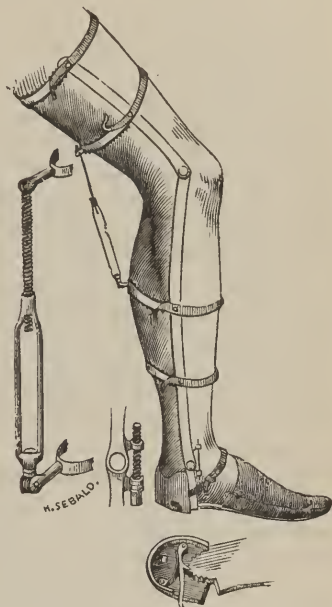


Fig. 36.

The second indication, to endeavor to restore the normal functions of the joint. After forced extension has been practised, the muscles have a decided tendency to return to their former condition, and it is a remarkable fact that muscles which have been contracted for years, are not exempt from this tendency—a fact which sufficiently refutes the opinion that muscles, under prolonged contraction, lose their vitality. It is true they may suffer fatty degeneration, then the case is hopeless.

The division of the lateral ligaments is sometimes of service.

To recapitulate, then, place the patient under ether or chloroform, to relax the muscles, then forcibly bend or extend the limb—it will most likely crack as the ligamentous structures and adhesions are broken through, but there is no danger—put the limb on a splint, use passive motion, and have an evaporating lotion applied.

Ankylosis is often cured by excision, or by dissecting down upon the parts, and dividing the bone with a chain-saw; this being done, the limb is easily straightened or bent, and bony union prevented by daily using passive motion; ligamentous attachments are formed, and an artificial joint is the result.



## DISLOCATIONS.

By *dislocation* or *luxation* of a bone is meant the escape of its articulating extremity nearest the trunk from the corresponding surface. Thus, the humerus is said to be dislocated when its head leaves the glenoid cavity of the scapula. The ball and socket joints are those most subject to luxation.

Dislocations may be caused by a direct force knocking the head of the bone into its false position, or by violence acting upon the distal end, the whole bone forming a lever, by means of which its head is displaced. They are in all cases either *simple* or *compound*, and either of these may be *complicated*; these terms having the same significance as when used with reference to fractures. When the head of the bone has wholly left the corresponding surface, the luxation is said to be *complete*; when it still remains partly in contact with it, *incomplete* or *partial*. The luxation is said to be *primitive* when the head of the bone retains the false position it first assumes, *consecutive* when it has undergone a further change of place. The terms *recent* and *old* would seem to need no explanation, but they are conveniently applied to luxation before and after the lapse of about a month. They are in some measure arbitrary.

Pain, deformity, and impairment of motion, are the chief and most constant symptoms of this class of injuries; sometimes the limb is shortened, and much more rarely lengthened; indeed, the essential symptoms of dislocation are two:

1st. Deformity; an alteration in the form of the joint; an unnatural prominence at one part and depression at another, with lengthening or shortening of the limb.

2d. Loss of the proper motion of the joint, which is often stiff and motionless.

In cases of doubtful diagnosis, between fracture and dislocation, the probabilities are in favor of the former, if the patient is either very young or very old, or a female; more evenly balanced if a male in middle life. Whenever the nature of the injury is obscure, the surgeon may derive great assistance, and the patient be saved much pain, if the latter is made insensible by means of ether or chloroform before the examination is begun.

*Morbid Anatomy.*—Dislocation is almost of necessity attended with rupture of some of the ligaments, but more especially in the shoulder and hip-joints we have complete rupture of capsular ligament, and the head of the bone has escaped through that membrane; but when reduction has been effected, it heals readily by adhesive inflammation.

If the dislocation is left unreduced, lymph will be thrown out around the head of the bone in its new situation, and a new socket will be formed and the old socket filled up.

The luxated head of a bone must return to its normal position, if at all, by the same course as that by which it escaped. Often the capsular ligament has sustained a rent like a button-hole, and the most enormous force would be unavailing to replace the head of the bone, unless applied in the proper direction. Hence, in order to an under-

standing of the indications in any case, the surgeon must be fully acquainted with the anatomy of the joint concerned, as well as of the soft parts surrounding it, and must inquire with diligence into the exact mode in which the displacement has been induced.

*Diagnosis.*—Dislocation will be distinguished from fracture

1st. *Absence of crepitus.*

2d. *Mobility is increased in fracture—diminished in dislocation.*

3d. *By measurement of the bone supposed to be broken, which, if broken, will be shortened.*

4th. *By the patient's age*—fractures most common in the young or the old—dislocation, most common in the adult.

Until within a few years past it was thought by surgeons that powerful extension was called for in almost every luxation, although in the case of the hip, as Sweet remarks, "reduction by manipulation or rotation dates from the earliest records of our science." This process of reduction by manipulation, rotation, oscillation, is now employed in displacements of nearly all the joints, and will, perhaps, altogether supersede, in recent cases, the old method, with its formidable array of pulleys and assistants. Perhaps it need hardly be said that the surgeon should always make trial of manipulation or rotation before resorting to other measures.

The general rule seems to be recognized, that the muscles should be as much as possible relaxed, and the limb moved in the direction in which the least resistance is encountered. A clear understanding of the points already referred to will, of course, enable the surgeon to proceed more methodically, and with a better prospect of success, than if he merely moves the limb in different directions in the hope of hitting the right one.

Reduction should invariably be attempted at the earliest possible moment. Before the introduction of anæsthesia by ether or chloroform, surgeons were accustomed to abolish muscular resistance by depleting their patients to faintness, by the warm bath, by tartarized antimony, lobelia, by tobacco, or by alcoholic intoxication; these latter means are now, of course, done away with.

#### LUXATIONS OF THE LOWER JAW.

Both condyles of the lower jaw may be displaced in front of the glenoid cavities by a force which greatly depresses the bone at its symphysis, such as a downward blow when the mouth is open; the accident may also be caused in weakly persons by the act of yawning widely.

This is usually a *complete* luxation.

*Incomplete* or *partial* luxation occurs when only one condyle is thus displaced; it is much rarer than the first form, but has the same mechanism.

When both condyles are out, the mouth is fixed wide open; a depression exists in front of the lower part of the external ear; the patient is unable to speak, and cannot swallow, so that the saliva accumulates and flows away; sometimes there is also much crampy

pain, especially in the temporal muscles. When only one condyle is luxated, the jaw is twisted to the other side, and brought slightly forward; the mouth is slightly open; the depression and pain are on the injured side only.

*Treatment.*—It is evident that, in order to replace the jaw, the condyles must be depressed below the level of the anterior margins of the glenoid cavities. This may be done in several days. The best plan is for the surgeon, standing in front of his patient, who is seated on a low, firm chair, or on the floor, to elevate the symphysis of the jaw with his fingers, while he bears down on the molars of each side with his thumbs, well wrapped, to avoid being bitten as the jaw snaps into its place. Some surgeons put a cork or pad over the molars, to serve, like the thumbs, as a fulcrum, the jaw-bone being acted on as a lever of the first order. Or the surgeon may stand behind his patient, and employ the same mechanism, supporting the head against his own chest. Or one side may be restored first, and then the other—the partial luxation being dealt with on the same principle as the complete. A supporting bandage should be used for a week or two.

In old or enfeebled patients especially, this manipulation may sometimes be successfully employed without putting the thumbs inside the mouth, pressure being made downward against the cheeks. Such a case occurred to me quite recently in an elderly lady. A subluxation of both condyles forward may be simulated by a spasmodic contraction of the depressing muscles of the jaw. It yields gradually to anodynes, frictions and fomentations.

#### DISLOCATIONS OF THE VERTEBRÆ.

These injuries, unattended with fracture, are very rare; they are more apt to affect the cervical region than the dorsal or lumbar. They owe their importance to the danger they involve to the spinal marrow.

Cases of this kind are upon record in which surgical influence has proved successful; extension and rotation carefully made until the displacement was overcome. Perfect rest for weeks afterward is advisable.

#### DISLOCATIONS OF THE RIBS.

Although a rib may possibly be displaced from its posterior connection, a detachment of its anterior end from the cartilage is much oftener met with. Several ribs may be thus luxated without any danger being necessarily involved. The signs and treatment are obvious.

#### DISLOCATIONS OF THE CLAVICLE.

Either end of the clavicle may be luxated. The sternal end may be driven backward by a direct blow, when the large vessels at the root of the neck will, of course, be endangered. Or, as has oftener happened, an indirect force throws the end of the clavicle in front of the sternum, or upwards along the side of the trachea.

The diagnosis in such cases can hardly be difficult. Reduction should be effected by manipulation, the shoulder being drawn outwards and downwards, or upwards, as the case may require. An apparatus, much like that for fracture of the clavicle, modified to suit the case, should be employed, to keep the bone in place when reduced. Complete restoration of the parts can seldom, if ever, be permanently effected; but the use of the arm may be very little impaired.

The acromial end of the clavicle may be displaced upwards, so as to rest on the upper surface of the acromion process. Such an accident may generally be recognized on careful examination. Reduction is not difficult, but the bone tends to slip out again very readily; hence, in addition to a sling confining the arm, direct pressure by a compress and strap is requisite.

A very few cases are on record in which the acromial end of the clavicle is said to have been dislocated downwards. In all, reduction was effected and maintained with ease.

#### LUXATIONS OF THE HUMERUS.

**ANATOMICAL RELATIONS OF THE SHOULDER-JOINT.**—In the shoulder-joint the spherical head of the humerus plays against the comparatively superficial glenoid cavity of the scapula, which, although deepened by the glenoid ligament, is yet so shallow that the head of the bone may readily be brought to bear against the capsular ligament, and, if sufficient force is applied, lacerate it, and escape from its natural articulating position, and rupture the capsular ligament. Such an accident would be of daily or hourly occurrence, were it not guarded against by the great mobility of the scapula, which gives way before every force in such a manner that it might seem almost impossible to displace the head of the humerus. Statistics, however, show that this luxation is of comparatively frequent occurrence, most probably because sudden forces take the muscles by surprise, and act before they have time to accomplish that adaptation of parts which might prevent the displacement. In considering the anatomy of this joint, with a view to the correct understanding of the manner in which these luxations occur, it should not be forgotten that the surrounding muscles exercise a considerable influence upon the joint by adding greatly to its strength; thus, the tendon of the long head of the biceps passes through the joint within the capsular ligament, in its course from its origin from the upper edge of the glenoid cavity, to its insertion into the tubercle of the radius, while the supra-spinatus muscle stretches from its origin above the spine of the scapula to its insertion in the greater tuberosity of the humerus, and passing over the top of the joint, and strengthens it above, the function of this muscle being to assist in the extreme elevation of the arm. More superficially, the joint is covered above by the deltoid, while below and laterally are the two teres, the sub and infra-spinati, and the coraco-brachialis muscle.

**ETIOLOGY.**—The luxation of the head of the humerus may be caused by two classes of forces; *first*, those applied directly to the head of the



bone, as falls or blows upon the shoulder-joint; and, *secondly*, indirect violence, such as that resulting from falls upon the hand or elbow, while the arm is carried off from the body, the force being transmitted through the bones of the fore-arm or arm to the shoulder, and the resistance made by the weight of the body.

*Symptoms.*—The first symptoms which should be looked for, in order to establish the presence of any of the varieties of these injuries, are those which may be classified under the general head of deformity. In order to understand this deformity, and to recognize it when it exists, the natural rotundity and fullness of the shoulder should be borne in mind, as well as the fact that the acromial extremity of the clavicle, and the two tuberosities of the humerus, are naturally on the same level. Bearing these facts in mind, the presence of the various deformities will be readily recognized.

*Diagnosis.*—Besides the ordinary points of diagnosis, which apply equally to all luxations, such as the diagnosis from diseases of the bones, from fracture, &c., it sometimes happens that, owing to a sprain or blow, or an injury of the circumflex nerves, or of causes not precisely understood, an atrophy of the deltoid muscle takes place, in consequence of which a flatness of the shoulder is produced, simulating somewhat the appearances presented by a dislocation. The diagnosis, however, is easy, as the limb retains almost its natural length; and although the shoulder is flattened, the fingers cannot be hooked under the acromion process as perfectly as they can be in cases of luxation, nor can the head of the bone be felt in the axilla.

*Prognosis.*—The prognosis of all humeral luxations is favorable, if seen within a month, and unattended by marked inflammation of the surrounding tissues. If otherwise, the prognosis should be guarded, failure to reduce leaving the motion of the shoulder much impaired.

*General Treatment.*—The reduction of all luxations of the humerus may be accomplished by elevation and rotation of the humerus, thus changing the relative distance between the origin of the scapular muscles and their insertion into the tuberosities of the humerus, as will be shown in each variety. By means of manipulations, as rotation, gentle oscillation, the *head* of the humerus, which has escaped through the capsular ligament, and its neck firmly grasped by that membrane, becomes disengaged, and an easy, natural and quick return of the bone to its natural position is the result.

#### VARIETIES OF DISLOCATIONS AT THE SHOULDER-JOINT.

*The humerus may be displaced from the glenoid cavity of the scapula downwards, forwards or backwards.*

#### LUXATION OF THE HUMERUS DOWNWARD INTO THE AXILLA.

*Symptoms.*—When luxation of the head of the bone occurs in the axilla, there is a flatness of the shoulder, the natural rotundity of the joint being destroyed, and a depression created; the surgeon being able, in thin patients, to hook his fingers under the acromial process

of the scapula. As the deltoid muscle is put upon the stretch by the displaced bone, the arm is usually carried off from the side, while, if the surgeon feels in the axilla, he will there find the head of the humerus, forming a smooth, round tumor, which, in thin subjects, is even readily perceptible to the sight. Generally there is, in addition, a marked change in the length of the limb, as may be proved by measuring it and the sound limb between two fixed points, as from the acromion process of the scapula to the external condyle of the humerus, measuring first the sound side and afterwards the injured one. In a case of luxation downward, in a full-sized adult, the limb will be found lengthened an inch or an inch and a half. Besides the lengthening of the limb, there is also loss of power, the patient not being able to hold the limb by its own muscles, and therefore resting the elbow upon the knee, or supporting it with the hand of the opposite side. If the surgeon seizes the arm, and attempts to elevate it quickly, great pain will be caused, in consequence of the pressure of the head of the bone upon the axillary plexus of nerves. For the same reason, if the luxation continues unreduced for several hours, the patient will often experience a tingling sensation in the fingers, while a certain amount of œdematous swelling will ensue, owing to the pressure of the head of the bone upon the axillary blood-vessels.

*Diagnosis.*—These symptoms, when taken collectively, are so marked that a case of luxation downward into the axilla can generally be recognized with but little difficulty. Still, cases are occasionally presented in which, from the swelling caused by effusion into the surrounding tissues, the diagnosis cannot be certainly made; or difficulty may result from the fact that the luxation is combined with fracture. In the first case, the measurement of the length of the limb becomes peculiarly useful; in the second, the symptoms of fracture of the neck and head of the bone must be borne in mind. To recapitulate:

1. This dislocation, then, may be due either to direct or indirect force. On examination, there will be found a depression below the acromion; the head of the humerus forms a lump in the axilla; the elbow is carried out some inches from the body, and more or less rigidly fixed; the arm slightly lengthened, and the whole limb somewhat numb from pressure on the axillary nerves. It will be found impossible to carry the hand of the injured side across to the sound shoulder.

When recent, a luxation of this kind is usually reduced without much trouble, chloroform or ether being always given unless contra-indicated. The patient is seated on the ground, or on a firm chair; the surgeon faces him, kneeling or standing before the injured shoulder, and puts his nearest knee in the axilla, under the displaced bone, while he bears down with his corresponding hand upon the shoulder, so as to fix the scapula. Now, keeping his leg vertical, he grasps with his free hand the lower part of the dislocated arm, and, by means of it, swings the patient up over his knee, the outer edge of which constitutes a fulcrum, over which the humerus bears as a lever of the first order. Gradually, after a few trials, or it may be at the first, the head of the bone goes in with a snap. Should the surgeon be short-legged, or the patient long-bodied, it will be necessary to place

a firm block under the foot of the former. Here the principle is the same as in the old plan of swinging the patient up by his arm over the edge of a door or the round of a ladder.

Another plan is to bind one loop of a rolled towel firmly to the lower end of the arm with a wet bandage; the patient then lying down, the surgeon sits so as to place his heel in the axilla, the free loop of the towel being cast over his back and one shoulder; he now grasps the wrist with one hand, and the fore-arm high up with the other, so as to rotate the arm by using the fore-arm as a lever, and makes extension by bearing backward with his body and straightening his hip and knee-joints. The force is begun and increased gradually, so as not to stimulate the muscles to resistance; having been strongly kept up for a few minutes, it is suddenly relaxed. An assistant should steady the scapula by pressure from above. Some surgeons employ the pulleys for extension, while a roller or other hard body is placed in the axilla, and counter-extension is made from a staple fixed in the wall. Another plan, proposed by Dr. Smith, is to seat the patient on a firm chair, a little on the one side of it, so as to allow room on the side of the injury for the operator's foot; a long piece of stout muslin is then passed around the chest, under the injured axilla, and its tails carried horizontally, in front and behind, to be secured to the wall or some other unyielding point; to this band the wrist of the extended sound arm is firmly bandaged. An ordinary roller is carried back and forth over the injured shoulder, and under the muslin band, twice, and then three or four times around under the seat of the chair and over the shoulder. A wet roller being applied to the wrist of the injured side, the extending band is then fastened to it by means of the clove-hitch, and traction made by two persons, outward and at first somewhat downward, then horizontally, and then a little upward, the force being gradually increased. Should this not succeed, the surgeon places his knee under the head of the bone, while the traction is made upward as much as possible; this having been done for a few moments, the arm is suddenly brought downward.

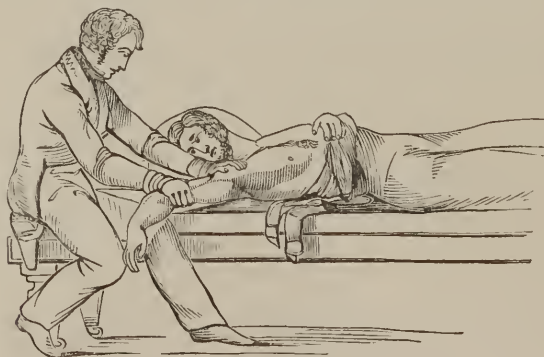


Fig. 37.

Another, and a very old method, (*Fig. 37.*) is to sweep the elbow by steady force, outward and upward, until the arm is parallel with the

neck, making traction all the while; the patient lying on his back, and the surgeon sitting so as to operate with one hand, while he steadies the scapula with the other. If more strength is needed, the surgeon may apply his foot on the top of the shoulder, while he operates with both hands; or he may employ assistants.

Dr. Sweet devised the following method of reducing these luxations by rotation and elevation of the humerus: "In the anterior luxation, elevate the elbow as much as possible, and carry it toward the head of the patient, keeping the arm on the line of the body, when the head of the humerus will readily slip into the axilla. In a posterior luxation, elevate the elbow, and carry it forward, so as to free the head of the humerus from the edge of the scapula, so as to throw it into the axilla, as has been long practised. An anterior or posterior luxation may also be readily converted into an axillary or subglenoid, by elevating the elbow, and carrying it backward,—the capsular ligament in each luxation being freely lacerated by the injury.

"The head of the bone being now mainly held against the neck of the scapula by the contracted supra and infra-spinatus, proceed as follows: elevate the arm and elbow as high as possible, and flex the fore-arm at right angles with the arm, thus relaxing the supra-spinatus muscle. Then, using the fore-arm as a lever, rotate the head of the humerus upward and forward, so as to relax the infra-spinatus, carrying the rotation as far as possible, or until resisted by the action of the subscapularis muscle, keeping the fore-arm for a few seconds in its position, with the palm of the hand looking upward; then bring the elbow promptly, but steadily down to the side, carrying the elbow toward the body, and keeping the fore-arm so that the palm of the hand yet looks to the surgeon. Then quickly, but gently rotate the head of the humerus upward and outward, by carrying the palm of the hand downward and across the patient's body, and the bone will usually be replaced."

#### LUXATION OF THE HUMERUS FORWARD.

Luxation forward presents a very different condition of the parts. The capsular ligament in this case is ruptured anteriorly, and the head of the bone escapes anteriorly, to take a position on the front of the chest, a little below the clavicle, and directly beneath the great pectoral muscle. There is another luxation, which sometimes occurs, and which is a secondary one, in which the head of the bone leaves this new position, and assumes one higher up, and nearer the clavicle.

*Symptoms.*—When the head of the bone is displaced anteriorly, the elbow is carried off from the side more strongly than in the dislocation downward, and any effort to bring it in toward the chest, gives great pain. The elbow also projects more or less backward. The deltoid muscle is not put so much upon the stretch as in the last variety, nor is the shoulder so much flattened; but in a thin person, the fingers of the surgeon may now also be readily hooked under the acromion process, while the roundness caused by the head of the bone may be seen near the position of the coracoid process of the scapula.



*Diagnosis.*—The fullness caused by the head of the humerus beneath the pectoral muscles; the diminished length of the arm, as measured from the acromion process to the condyles of the humerus, and the symptoms just enumerated, as compared with those of the other varieties, render the diagnosis of this injury comparatively easy.

*Prognosis.*—The prognosis is that of the humeral luxation downward; this variety being readily reducible to an axillary luxation.

2. *Dislocation forwards* may be either primitive, or consecutive upon dislocation downwards; the only important difference between the two being, that in the former case the rent in the capsule will be in front, and in the latter, below. Sometimes the head of the bone lies just below the coracoid process, sometimes higher up, just under the clavicle. The elbow is directed slightly backwards, and the arm very slightly shortened, if changed at all in length.

Reduction is effected by analogous means to those used in luxation downwards; but the operation would seem to be less generally successful than in that case.

#### LUXATION OF THE HUMERUS BACKWARD.

If the force is applied while the arm is carried across the body, the capsular ligament will give way posteriorly, and a dislocation backward ensue. This deformity, therefore, is entirely different from the last variety. In luxation backward, the elbow goes forward and against the body, while in luxation forward, it went backward and from the body. The head of the bone also forms a tumor upon the inferior fossa of the scapula, resting upon the infra-spinatus muscle, where, if the patient is comparatively thin, it may be distinctly felt.

*Treatment.*—As muscular contraction is the chief obstacle to the reduction of these luxations, it is necessary, in order to understand the manner in which the force is to be applied, to reduce them, that their mechanism and the muscular attachments concerned should be thoroughly understood, and a brief reference to this may now be useful to the student.

When the head of the humerus is luxated downward into the axilla, the supra-spinatus muscle is put upon the stretch; it is also spasmodically contracted, and its spasmodic contraction, in the new position of the bone, serves to draw the head of the humerus firmly up against the inferior edge of the neck of the scapula; hence the spasmodic contraction of this muscle is one of the obstacles which must be overcome in the reduction.

Another muscle put upon the stretch, and spasmodically contracted to some extent, is the deltoid, which acts similarly. The other muscles are but slightly changed, the latissimus dorsi and the pectoral being a little relaxed. In the reduction of the luxation downward, means must, therefore, be used to overcome the spasmodically contracted muscles, in order to draw the head of the bone clear of the lower edge of the glenoid cavity; after which, the humerus can readily be carried off from the body, so as to cause its head to ride clear of this edge back into its place. In so marked a manner does the contraction of

the supra-spinatus aid in retaining the bone in its unnatural position, that in a *post-mortem* examination of a patient, who died while laboring under an unreduced dislocation of the humerus downward, Sir Astley Cooper, though cutting away the muscles one after another, found himself unable to reduce the bone until he had divided the tendon of the supra-spinatus muscle.

In the dislocation forward, the supra-spinatus is also put upon the stretch, but not so much as the infra-spinatus. The latissimus dorsi is also slightly stretched or entirely unchanged, while the pectoralis major is much relaxed, and would be still more so, were it not for the tumor formed beneath its belly by the head of the bone. The chief obstacles to the reduction are the contractions of the supra and infra-spinatus with the deltoid, and the force must, therefore, be applied in such a manner as to overcome these muscles, in order to accomplish the reduction.

In the dislocation backward, the supra-spinatus, the subscapularis, and the teres major muscles, with the pectoralis major, will be stretched, and the deltoid and infra-spinatus relaxed.

Whatever aids, then, in inducing muscular relaxation, must facilitate the replacing of the head of the bone in its true position; and there is no better method of inducing this complete muscular relaxation than by a means of anæsthesia as produced by ether, or ether combined with chloroform, in the proportion of one part of chloroform to three of ether, *by weight*; though much also may be done simply by rotating the head of the humerus, so as to modify the distance between the origin and insertion of the muscles around the joint, especially those arising from scapula, and inserted into the tuberosities of the humerus, the normal relations of these muscles being always changed when the head of the humerus leaves the glenoid cavity.

#### METHOD OF SWEET, BY ROTATION AND ELEVATION OF THE HUMERUS.—

In the anterior luxation, elevate the elbow as much as possible, and carry it toward the head of the patient, keeping the arm on the line of the body, when the head of the humerus will readily slip into the axilla. In a posterior luxation, elevate the elbow, and carry it forward so as to free the head of the humerus from the edge of the scapula and capsular ligament, so as to throw it into the axilla, as has been long practised. An anterior or posterior luxation may also be readily converted into an *axillary* or *sub-glenoid*, by elevating the elbow and carrying it backward—the capsular ligament in each luxation being freely lacerated by the injury.

The head of the bone being now mainly held against the neck of the scapula by the contracted supra, infra-spinatus, and capsular ligament, proceed as follows:

Elevate the elbow and arm as high as possible, and flex the fore-arm at right angles with the arm, thus relaxing the supra-spinatus muscle. Then, using the fore-arm as a lever, rotate the head of the humerus upward and forward, so as to relax (*Fig. 38*) the infra-spinatus, carrying the rotating as far as possible, or until resisted by the action of the subscapularis muscle, keeping the fore-arm for a few seconds in its position with the palm of the hand, looking upward, then bring the

elbow promptly but steadily down to the side, carrying the elbow toward the body, and keeping the fore-arm so that the palm of the hand yet looks to the surgeon. Then quickly but gently rotate the head of the humerus upward and outward, by carrying the palm of the hand downward and across the patient's body, and the bone will usually be replaced. Should difficulty occur from the marked muscular development, induce anæsthesia.



Fig. 38.

This method of reduction occupies but a few seconds, and may be accomplished while the patient is engaged in conversation. It consists of three periods: Elevation of the elbow and rotation of the head of the humerus by means of the flexed fore-arm, depression of the elbow while retaining rotation of the tuberosity of the humerus, leverage and elevation of the head of the bone into the glenoid cavity by carrying the arm over the chest and reversing the rotation.

*After-treatment.*—Having reduced the luxation, the after-treatment will consist in any means, such as a sling, which will keep the joint at rest until union of the lacerated capsular ligament has occurred; the patient being advised for some length of time to abstain from any motions which would be likely to bring the head of the bone upon the injured portion of the capsular ligament.

Occasionally the injury to the parts surrounding the joint, resulting from the force which produced the accident, or from that which is employed in the reduction, causes such a degree of inflammatory action as requires the employment of active antiphlogistic measures. Thus,

it may be necessary to dry cup around the part, or to apply cold cloths, cloths wrung out of lead-water, &c.

Should paralysis of the limb, either partial or complete, result from pressure of the head of the bone upon the axillary plexus of nerves, those measures must be resorted to which are adapted to local paralysis; as stimulating liniments, friction, subcutaneous injections of strychnine. Should these measures fail, much may be done by the judicious employment of electro-galvanism, by cold douches, &c., and in the majority of cases, the judicious employment of these measures will ultimately restore the usefulness of the limb.

Paralysis of the deltoid muscle is to be treated on the principles required for the development of the muscles, as friction, cold douches, and electricity, the current being made to pass through the deltoid by applying one pole of the current in the axilla and the other to the muscle.

OLD DISLOCATIONS of the shoulder have always been regarded as troublesome and even dangerous to meddle with. After the lapse of six or eight weeks, the head of the humerus becomes more or less bound in its false position by adhesions, as well as by stiffening and contraction of the muscles. Very great force is almost always requisite to overcome these obstacles to reduction, and sometimes the attempt has to be abandoned. Moreover, it should not be forgotten that not only has the bone sometimes been broken, but cases are upon record in which fatal rupture of the axillary artery has taken place; so that very great caution is necessary in undertaking and performing the operation.

Besides the other mechanical means, already mentioned, there is an instrument known as "Jarvis's adjuster," too complicated to be described here, which may be used with advantage in breaking up the adhesions, so that the bone may be reduced in the ordinary way.

#### COMPOUND LUXATIONS OF THE SHOULDER-JOINT.

A COMPOUND LUXATION OF THE SHOULDER is a dangerous injury, more so, even, than compound fractures of the neck of the bone. In its treatment, the parts should first be cleansed thoroughly of all foreign matters, after which the bone should be returned into place, and inflammation actively combated. Should the head of the bone protrude from the wound, and the muscles around it become spasmodically contracted, so as to prevent its reduction, the orifice through which it protrudes should be enlarged with a scalpel, sufficiently to enable the bone to be returned into its place, as directed in the case of compound fractures; or the head of the humerus may be sawn off, as in a resection of this bone for disease of the shoulder-joint, though in many instances the perfect relaxation induced by anæsthetics will permit the reduction of the protruding bone.

#### DISLOCATIONS OF THE ELBOW.

BOTH BONES of the elbow may be dislocated *backwards*, the fibres



of the brachialis anticus muscle being usually torn, or the coronoid process of the ulna broken off. The joint is almost rigid, bent at an obtuse angle, its antero-posterior diameter much increased; the olecranon projects backwards much as the os calcis does at the heel.

To reduce this luxation, the fore-arm must be drawn downwards until the coronoid process of the ulna clears the posterior edge of the articulating surface of the humerus, when the normal form of the joint is at once restored, and flexion to a right angle becomes possible. An inside angular splint should be used to support the arm for a week or two, and, if necessary, inflammation should be combated.

BOTH BONES of the fore-arm may be dislocated *forwards*, either with or without fracture of the olecranon; but this accident is much rarer than the preceding.

The symptoms are, shortening of the arm and lengthening of the fore-arm, absence of the olecranon at its usual place, tension of the skin, and slight flexion of the elbow. The elbow may be straightened, or even bent forwards; but only with great pain.

Reduction is easily effected by strongly flexing the elbow over the arm of an assistant, if necessary.

When the radius and ulna are luxated *outwards*, the elbow is bent somewhat, and the head of the radius can be felt outside of the articulating extremity of the humerus; the hand is pronated. The diagnosis is not difficult.

*Reduction* is generally easy in recent cases, the surgeon placing his knee in the bend of the elbow, while with one hand he grasps the upper arm, and with the other draws down and attempts to flex the fore-arm upon it. Should this prove painful, or fail, simple extension with assistants, while the surgeon makes lateral pressure, may succeed.

Luxation of these bones *inwards*, resembles the last mentioned case, except in the deformity about the joint, the bony points being different. The treatment is to be conducted on analogous principles.

The ULNA, alone, may be dislocated backwards, but there is usually, at the same time, a fracture of the outer condyle of the humerus. Its treatment should be like that of luxation of both bones backwards, an anterior angular splint being applied afterwards.

The RADIUS, alone, may be dislocated *forwards*, *backwards*, or *outwards*, the latter being thought by Sweet to be usually consecutive upon either one of the former. The annular ligament must, of course, be either stretched or torn in these cases; it is generally torn. Sometimes the luxation *forwards* is irreducible; and it is always, like both the other forms, very apt to recur. The treatment consists in manipulation and direct pressure.

#### DISLOCATIONS OF THE WRIST.

The wrist may be luxated either *backwards* or *forwards*, the latter being the less common form. I have once seen all the carpal bones displaced into the palm of the hand, by crushing between two calico-rollers; they were restored by manipulation, but the subsequent inflammation caused the loss of the hand.

In luxation backwards, there is a prominence at the back of the wrist, and another in front, the latter being nearer the ends of the fingers than the former.

In luxation forwards, the prominence at the back of the wrist is on a line with the back of the fore-arm, and nearer the ends of the fingers than in front. In both, the motions of the joint are lost, and the hand rendered useless.

*The treatment* consists in making extension on the hand, rocking it back and forward so as to make the convexity of the carpus clear the edge of the concave articulating surface of the radius. Having thus restored the bones to their proper relation, an anterior and posterior splint, with suitable compresses, should be applied. Inflammation should be carefully subdued.

Sometimes, especially in weakly and loose-jointed persons, the os magnum is started out of place so as to form a prominence at the back of the hand; the displacement is usually permanent, and when it can be corrected is apt to recur.

#### DISLOCATIONS OF THE METACARPAL BONES.

The metacarpal bone of the *thumb* may be dislocated either towards the dorsal or palmar surface of the trapezium; the injury can be readily recognized and treated. Very rarely, indeed, the other metacarpal bones may be displaced backwards. Sweet mentions having seen two cases of this luxation of the index and middle fingers; in both, the lesion was caused by striking a blow with the clenched fist, and had proved incurable.

#### DISLOCATIONS OF THE PHALANGES.

Of all these bones, the first phalanx of the thumb is most frequently luxated, and generally backwards. Sometimes it stands erect upon its base, near the lower, and of the posterior surface of the metacarpal bone; sometimes it has assumed a direction nearly parallel to the latter.

Mere extension will often fail in the reduction of this displacement; it may be tried, a piece of strong tape being attached to the thumb, just above the lost joint, in a clove-hitch.

Failing in this, the surgeon should try manipulation; with one hand flexing the metacarpal bone as much as possible into the palm of the hand, so as to relax the flexor brevis pollicis; then pushing forward the upper end of the dislocated phalanx, the surgeon grasping its distal end, makes forcible flexion and extension: After proceeding thus for a few moments, he suddenly flexes the thumb strongly; if it is not reduced, he bears the distal end back again, so as to bring the phalanx at a right angle with the metacarpal bone, (still keeping up the pressure against the upper extremity of the former,) when the luxated bone will slip into its proper place. Such manipulations may be very properly combined with extension. In order to obtain a firmer hold of the luxated phalanx, various methods have been devised;

Charrière, the well-known French instrument maker, has made a forceps for the purpose. But the simplest plan is that with a slip of hard wood perforated with holes, through which tapes are passed so as to form two loops; the dislocated thumb or finger being embraced between these loops and the wood, the loops are drawn tight and secured so by winding the tapes around the upper end of the bit of wood.

For mere extension, the Indian "puzzle," a tube of braided straw, which narrows as it is pulled upon, answers very well; the finger is introduced into it, and it cannot let go until the traction is relaxed.

Division of the lateral ligaments, (of the tendons of the flexor brevis in the case of the thumb,) has been proposed and executed by many surgeons, and may be resorted to with propriety if all other means fail.

#### DISLOCATIONS OF THE HIP.

It is of the utmost importance for the surgeon to recognize and treat properly these very serious injuries. Four general forms of them are described, although cases occur in which the head of the femur assumes some intermediate position. It may be displaced—

1. *Upwards and backwards*, upon the dorsum ilii.
2. *Backwards*, into the sciatic notch.
3. *Upwards and forwards*, upon the pubis.
4. *Downwards and forwards*, into the foramen thyroïdien.

*In the first form*, the limb is much shortened, and the two inverted; the thigh is adducted and somewhat flexed, so that the knee rests just above the patella of the opposite side; the trochanter major is nearer



Fig. 39.

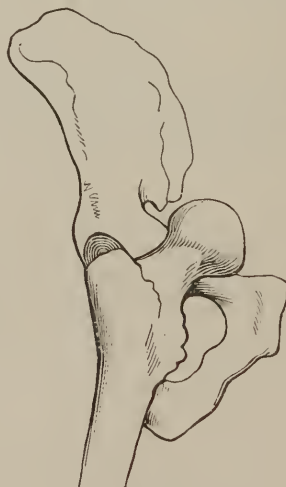


Fig 40.

the anterior superior (*Fig. 39*) spinous process of the ilium than it should be, and the head of the femur forms an abnormal prominence. The buttock is widened and flattened.

*In the second form*, the symptoms are much the same as in the first, but less prominent, and the head of the bone can be felt lower down, while the trochanter is carried only slightly upwards.

*In the third form*, the symptoms are quite different; the thigh is abducted and slightly flexed, the limb shortened, and the trochanter rendered obscure, (*Fig. 40*,) while the head of the bone forms a marked prominence at the fold of the groin.

*In the fourth form*, the thigh is lengthened and somewhat abducted, the body drawn forwards toward it, the hip flattened, (*Fig. 41*,) and a hollow felt where the trochanter should be.

Other directions, in which the head of the thigh-bone has been known to be displaced are—directly upwards, directly downwards, downwards and backwards, either into the lower sciatic notch, or upon the body of the ischium.

#### LUXATION OF THE HIP-JOINT.

*Anatomical Relations.*—The *hip-joint* is formed by the articulation of the round head of the femur with the deep cavity of the acetabulum; a cavity which possesses considerable depth in the skeleton, but which is still further deepened in the patient by the cotyloid ligament surrounding its edge. The head of the femur is held securely in this deep socket by a strong capsular ligament, and by the ligamentum teres, or round ligament, which passes to the head of the bone and the bottom of the acetabulum. In addition to these ligaments, the articulation is materially strengthened by powerful muscles which surround it, such as the glutei and psoas magnus muscles, the pyramidalis, gemini, obturators, quadratus femoris, and the powerful muscles of the front and inside of the thigh, as the rectus, adductors, &c. All these render this articulation so firm that the femur is seldom displaced, unless the muscles are taken by surprise, and the force producing the luxation is not only great but sudden; or, unless the head of the femur or the articulating cavity of the innominatum are altered by disease, so as to permit the action of the muscles to create the displacement.



Fig. 41.

#### LUXATION OF THE HEAD OF THE FEMUR UPWARD AND BACKWARD UPON THE DORSUM OF THE ILIUM.

*Etiology.*—The causes which produce this luxation are such as apply force from below upward, while the limb is carried across its fellow. It is accordingly found to result from falls, and particularly from falls upon the knees, while the patient is carrying heavy weights, &c.

*Symptoms.*—The symptoms of this luxation are as follows: There is shortening, which is sometimes inconsiderable at first, but becomes



very marked in a few hours, varying then from an inch and a half to two inches and a quarter, as ascertained by measurement, made in the manner directed under the head of fracture of the thigh; or, if the force producing the luxation also forcibly adducts the limb, the shortening will be marked from the first moment after the accident. The foot is strongly inverted, the toes pointing toward the instep of the opposite foot, (*Fig. 42,*) or resting upon it. The limb is also very much adducted, and carried toward its fellow, so that the knee rests upon the inner and under side of the opposite thigh. There is, moreover, an unnatural prominence upon the dorsum ilii, caused by the presence of the head of the bone beneath the musles, a deficiency in the prominence of the trochanter major, and unnatural flatness over the cavity of the acetabulum, which, in a lean individual, may be distinctly felt. The trochanter major can also be felt much closer to the anterior superior spinous process of the ilium than it is in the normal condition of the joint.



Fig. 42.

There is a total absence of crepitation, though sometimes a cracking can be heard in the neighborhood of the injured joint, which might mislead a young surgeon; but experience will recognize at once that it is the soft cracking of synovial or liquid effusions, and totally different from the crepitation of fracture. The patient usually complains of considerable pain, particularly when the parts are put upon the stretch by any motion, such as that made by the surgeon in examining the parts.

**Diagnosis.**—With such symptoms, there can hardly be any difficulty in making out a diagnosis under ordinary circumstances, especially if the patient is seen soon after the occurrence of the injury. In the injuries of the hip, of some standing, the diagnosis is often, however, extremely difficult, it being almost impossible sometimes to decide whether the case is one of luxation or fracture. From fracture of the neck of the femur, which is the condition most likely to be confounded with it, the luxation upward and backward can generally be distinguished by the fact, that, in fracture, the shortening is readily reduced, though it is reproduced as soon as the extending and counter-extending forces are removed; whereas, in dislocation, the deformity is reduced with much greater difficulty, the bones being likely, when reduced, to remain in place. The diagnosis from the luxation which sometimes occurs in *morbus coxarius*, as a result of change of structure, will be given under the latter head.

**Mechanism.**—With regard to the manner in which the muscles concerned are affected, it will be readily understood that the glutei muscles arising from the ilium, and inserted into the trochanter major, are very much relaxed, while the small rotatory muscles are put upon the

stretch, or even more or less lacerated. The iliacus internus and psoas magnus are also violently stretched, and the lower adductors are more or less retarded.

*Treatment.*—Few surgeons of the last two hundred years have probably ever been called on to attempt the reduction of a luxation of the femur, without having vividly brought before their minds the powerful muscles, the spasmodic contractions of which, it was admitted, kept the luxated bone in its unnatural position. Impressed with this idea, the necessity of resisting muscular contraetility by mechanical force, and augmenting it until the power of the muscles was sufficiently overcome to permit the reduction of the displaced bone, was always strongly insisted on as the prominent indication in the treatment, though from time to time suggestions were made of the efficiency of certain manipulations in facilitating the extension and counter-extension in the reduction of the bone. It remained, however, for Dr. Sweet to give such ideas a definite shape, and to prove that a luxated femur, even in muscular individuals, and when displaced for several weeks, could be easily reduced in a few minutes by gentle manipulation, rotation, oscillation, with but little pain to the patient, and with great ease to the surgeon, as compared to the heavy labor of thirty minutes or an hour, formerly required by him. In consequence of this valuable suggestion of Sweet, the practice of surgeons, prior to the year 1830, will probably be entirely laid aside; pulleys, straps, hooks, sheets, &c., placed upon the shelf; and the former means of reducing luxations of the femur be hereafter looked on with the same feeling that a traveler regards the instruments of torture in the old Spanish inquisitions. In fact, surgery will be sufficiently noted for its improvements, if nothing else is developed, than the admirable mode of reducing luxations of the femur, suggested by the immortal Sweet.

*Sweet's plan of reducing a luxation of the femur upward and backward on the dorsum of the ilium, solely by manipulation.*—Place the patient on his back, on a low, firm table; or, what is better, upon a quilt, folded and laid on the ground. Let the operator stand or kneel on the injured side, and seize the ankle with one hand and the knee with the other. Then flex the leg on the thigh; next strongly *adduct* it, carrying it over the sound one, and at the same time upward over the pelvis, by a kind of semi-circular sweep, as high as the umbilicus. *Then abduct* the knee gently, turn the toes outward, and heel inward, and the foot across the opposite and sound limb, making *gentle oscillations of the thigh*, when the head of the bone will slip into its socket with a slight jerk, or an audible snap, and the whole limb will slide easily down into its natural position beside the other. In a recent case the whole operation can be accomplished in less time than it can be described.

The advantages claimed by Sweet for this method, are such as my experience of it, in several instances, strongly confirm.

1. It is simple.
2. The movements are natural.
3. There is little or no pain.
4. There is neither tonic nor involuntary spasms to contend with.
5. It is better adapted to, and more certain of success, in cases of long standing, than by the pulleys.
6. It is free from

danger under all circumstances, *provided* Sweet's directions are accurately observed. A rocking motion of *the leg*, while the thigh is being brought to the *straight position*, and strongly adducted, is objected to by him, as a source of failure in the manipulation, if not of danger. When the thigh is flexed on the trunk, say at an angle of  $45^{\circ}$ , and is gently *adducted*, and the head of the bone thus brought close to the lower edge of the acetabulum, if, while gentle oscillations of the thigh are made at the knee, the head of the femur does not immediately enter the socket, the knee (*Fig. 43*) should be alternately elevated and



Fig. 43.

depressed, thus varying the angle of the thigh. If, by this manœuvre, alternated with the before mentioned oscillating or lateral movement, the head does not enter, we should then cease all motion, and hold the thigh and leg perfectly quiet for a short period, keeping the former still slightly adducted, so that all the muscles, &c., may become quiescent. The foot and leg must be kept still, also, and firmly directed toward the opposite thigh; for, if we relax or carry it outward, we shall roll the head of the femur away from its resting-place and proximity to the acetabulum, and permit or provoke the muscles to draw it into the foramen ovale, ischiatic notch, or dorsum ilii. After a short time we may repeat our attempts, and in all suitable cases, of from four to six weeks' standing, confidently anticipate a speedy and favorable issue.

The importance of carrying out directions accurately, cannot be too much insisted on in all operations, but especially in those which are novel; and I have, therefore, given Sweet's own account, in order that errors may be avoided. I have, in numerous instances, employed his

method with success, several of the cases being on the dorsum of the ilium, some into the sciatic notch, others into the foramen thyroideum\* The facility with which a luxation of the dorsum of the ilium could be converted into one in the sciatic notch, first struck me in these cases; and it is not the least extraordinary part of this manipulation, that the surgeon can readily convert any one form of luxation of the femur into another, and then reduce it. In all instances in which I have resorted to Sweet's manipulation, I have first etherized the patient, though I am satisfied that it can be done, as he advises, without inducing anæsthesia or nausea. My chief object in the etherization, has been to prevent any straining, and save the patient inconvenience, believing that the manipulation is so perfect that no muscular action is required to replace the bone, and the latter being carried into the acetabulum, as it would be by similar manipulation on the skeleton. By the inconsiderate action of the lever-force obtained in Sweet's method, one of three accidents may result:—1. The muscles may be torn from their attachments. 2. The parts through which the head of the bone moves may be torn. 3. The neck of the femur may be broken. Gentleness, and a strict observance of the method, is necessary.

*After Treatment.*—After the reduction of a luxation of the femur, the two limbs should be tied together, and the joint kept at perfect rest for ten days, or two or three weeks, in order that the lacerated capsular ligament may be allowed to heal. Should violent inflammation show itself around and within the joint, dry cups to the part, with the cold water-dressing and purging, may be demanded.

In any case of luxation at the hip-joint, the surgeon should first try to reduce by manipulation or rotation. The mode of doing this will vary, of course, with the direction of the displacement, but the general rule is to bring the limb up toward the body, adducting, abducting and rotating it, so as, in the first place, to relax the muscles, and in the second place, to cause the head of the femur to clear the lip of the acetabulum. "Sweet's method" of reducing luxations of the femur upon the dorsum ilii may be taken as a type of these procedures generally; it consists in flexing the knee, carrying it inwards across that of the sound side, and thus sweeping it round up over the umbilicus and into abduction, rotating it at the same time. Any one may arrive at the rationale of this proceeding, by going through with it a few times with a pelvis, and an articulated leg, bearing in mind the while, the exact anatomy of the soft parts about the joint; and the mode of dealing with the other displacements of the hip may be studied in like manner.

These movements should never be forced, but the surgeon should try a new direction as soon as he meets with any obstacle; he has perfect command of the limb in the leverage afforded him by the thigh and leg. Anæsthetics are hardly called for in this operation, unless

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\* The principle of reducing dislocations of the head of the humerus and femur, by rotation, manipulation, as laid down by the immortal Sweet, deserves to be ardently cherished by all reformed physicians. Mankind has been benefited, and ages yet unborn will bless the name of Sweet.



the patient is very timid, or an unusual degree of muscular spasm is present.

Mere manipulation failing, the surgeon must combine extension with it. Counter-extension is made from the perineum, extension from the lower part of the thigh; the counter-extending band usually a sheet folded cravatwise, and attached to a staple, conveniently fixed, while the extending force is made by assistants, either with or without pulleys.

The simplest mode of applying the extending force, is by a strong band applied in a clove-hitch over a wet roller, bound round firmly just above the knee. The ends of this band may either be knotted, and attached to a set of pulleys, or arranged to be drawn upon by assistants. A leather band buckled round the thigh, having, at right angles to it, two straps terminating in rings, is sometimes used, but offers no advantages over the simple clove-hitch. Sometimes it is desirable to fix the body of the patient; and this may be done by means either of a broad belt or girth of webbing, buckled round the body, or by tying a folded sheet around the body and bedstead, or table.

Occasionally traction has to be made in still another direction, at right angles to the axis of the bone, by means of a band carried round the upper part of the thigh, so as to draw the head of the bone outwards.

All being made ready, the patient being rendered wholly insensible by ether or chloroform, the surgeon takes the leg in both hands, and, while the assistants make the extension, rotates the thigh; or, committing this duty to a reliable assistant, he endeavors, by direct pressure with his fingers, to push the head of the femur into place.

Reduction being effected, the thighs should be brought close together, and fastened thus by a bandage. The patient should keep his bed for at least a week.

A few words only need be said with regard to the remaining dislocations of the lower extremity.

#### DISLOCATIONS OF THE PATELLA.

A blow may knock the patella out of place, either outwards or inwards, or may twist it on its vertical axis.

No difficulty can exist in regard to the diagnosis, but the replacement of the bone may be a matter of impossibility. The patient being placed fully under the influence of an anæsthetic, the limb should be straightened as completely as possible, and the surgeon should then endeavor, with his fingers, to push the bone into its normal position. Failing in this, he should divide, subcutaneously, the fibrous structures which hinder the reduction, cutting, if necessary, even the ligamentum patellæ. The limb should then be placed absolutely at rest, and every means taken to prevent or allay inflammation.

## DISLOCATIONS OF THE TIBIA.

By a direct blow, the tibia may be luxated upon the femur, either outwards, inwards, forwards or backwards; or the same result may ensue from the foot being firmly fixed in any way, while the body, with the thigh, is forcibly moved. In the first or second form of displacement, the bones are only partly separated, the inner condyle of the femur resting upon the outer articular surface of the tibia, in the dislocation inwards, and *vice versa*. In the third or fourth, the axes

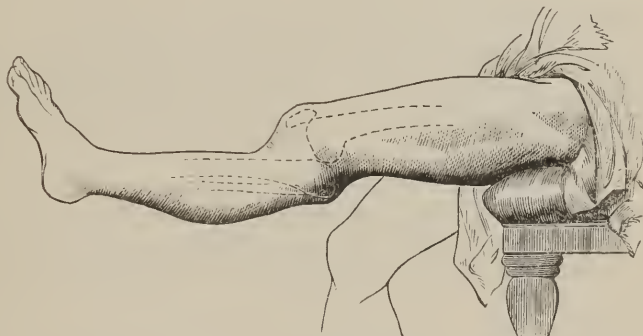


Fig. 44.

of the two bones may be quite parallel, (*Fig. 44*), and their articulating surfaces wholly removed from one another; the ligaments about the joints are more or less extensively torn, and the connections of the patella are apt to be broken, either above or below; the popliteal vessels and nerve are endangered.

Neither the diagnosis nor the indications for treatment are obscure in these cases. Extension and counter-extension should be made by assistants, while the surgeon manipulates the bone into its place; and then the danger of inflammation is to be met. Amputation will be called for if the vessels and nerves have been broken across.

## DISLOCATIONS OF THE FIBULA.

The upper end of the fibula may be displaced, either forwards or backwards; the nature of the injury can hardly escape detection, and its treatment is very simple. It may be combined with a fracture of tibia lower down.

## DISLOCATIONS OF THE ANKLE.

By falls on the feet, or in railroad or machinery accidents, the ankle may be dislocated in various ways. The astragalus, with the calcaneum and other bones, may be carried backwards, or more rarely forwards, with regard to the lower end of the tibia and fibula. The astragalus alone may be dislocated, usually by violent wrenching of the foot; it may be felt forming an unnatural prominence in its new position.

Often the violence to the soft parts is so great, even when these luxations are not compound, as to cause destructive inflammation of the foot. The surgeon should, however, attempt reduction as early as possible, by means of extension and counter-extension made with the hands, the foot being at the same time flexed, extended, and moved in various directions, while direct pressure is exerted to force the bone into place.

Excision of the bone has been performed, where reduction was impossible, but without encouraging results.

#### DISLOCATIONS OF THE SMALLER BONES OF THE FOOT.

These, when recognized, may sometimes be corrected without any great difficulty, by direct pressure. The surgeon should deal with them on the same principle as with those of the corresponding bones of the hand.

#### COMPOUND DISLOCATIONS.

These are among the most formidable injuries met with by the surgeon. When it is possible, they should be reduced, and the attempt made, as in compound fractures, to render them simple by closing the wound.

### INJURIES AND DISEASES OF ARTERIES.

**WOUNDS OF ARTERIES.**—An artery is known to be wounded by the flow of blood; its florid color, profuse, and ejected in jets corresponding to the cardiac impulse.

*Treatment.*—Nature employs *four* processes for the arrest of hemorrhage from a wounded artery. The divided orifice contracts more or less, and retracts into the cellular sheath; the blood coagulates in the sheath of the artery, and in the wound, and thus obstructs the farther exit of it, and, latterly, the faintness induced by the hemorrhage, both checks the current of blood from the heart, and gives it an increased disposition to coagulate.

In the case of an artery divided quite across, the bleeding is arrested mainly by the contraction of the muscular coat of the artery. Stimulated by the injury and by exposure to the air, and relieved from much of the pressure of the blood, whose onward course is less resisted, the muscular tissue of the divided artery contracts and closes, or at least diminishes the canal.

The retraction of the divided artery within its sheath, or among the adjacent tissues, assists to stay the bleeding, by giving opportunity for the blood to become diffused through the tissues that collapse over the end of the artery before it closes. But the degree of this retraction is very uncertain, as well as the readier coagulation of the blood, which ensues in syncope. The efficacy of the means that nature employs for arresting hemorrhage from all but the principal arterial trunks is evident enough.

But the primary and secondary vessels require, invariably, ligation, and the first indication with these vessels is to arrest the flow of blood

by pressure with the finger, by pressing the trunk of the artery against a bone; by applying the tourniquet; or a handkerchief might be passed quickly round the limb, and twisted tightly with a stick.

The permanent measures for arresting hemorrhage are, *ligature*, or *acupressure*; *torsion*; *pressure*; *cold*; *styptics*.

**LIGATURE.**—If a ligature is tied tightly and evenly upon an artery, it divides the middle and internal coats, leaving the external or muscular coat enclosed in the knot. The cut edges of the internal coat unite by adhesion, the blood between the points tied, and the nearest collateral branch coagulates and shrinks into a fibrous cord; the ring of the cellular coat, enclosed in the ligature, ulcerates; and the ligature comes away in from five to twenty days, sooner or later, according to the size of the vessel. The efficacy of the ligature depends on adhesion of the cut surfaces of the internal coat of the artery; to promote which the ligature should be smoothly and evenly applied. The efficacy of ligation also depends on the adhesion and organization of the blood in the artery, between the part tied and the nearest branch.

In the ligation of a vessel, disturb the parts as little as possible, and, after tying one end of the ligature, should be cut off, and then allowed to hang out of the wound.

In the ligation of vessels, aside from an amputation, an oblique incision is the best, as it is often difficult, from some accidental circumstances, to know the precise position of the vessel.

**ACUPRESSURE** is the best mode of arresting hemorrhage, where it is practicable; the principal mode of application consists in inserting a needle underneath the vessel, and, if necessary, the figure 8 suture over the needle. It has the advantage of promoting primary union in the major operations, there being no ligature in the wound; the needle presses, in close approximation, the internal coats of the vessels; adhesion rapidly takes place.

Cases are on record where the needle has been applied for forty-eight hours, where perfect adhesion had taken place. Where it is practicable, it is vastly superior to the ligature.

**TORSION.**—This produces obliteration of the vessel, either by coagulation, and simultaneous assimilation of all the three coats, or, by insensible contraction, converts the arterial tube into an impervious cord. It is adapted to small vessels of the fifth or sixth order.

Seize the vessels with the forceps, close the instrument, and twist in the fingers, six or seven times in the same direction; repeat it if not sufficiently done. Seize the whole calibre of the vessel, taking a sufficient hold; do not include the surrounding tissues, and use torsion, so that the proper coats are ruptured. The advantages are, simplicity, celerity, and no foreign bodies remaining in the wound.

**PRESSURE** is applicable to wounded arteries of small size, situated immediately over bones or arteries that are diseased, that no ligature will not hold. The pressure should be confined to the bleeding orifice, and it may be aided by means of compression, and bandages along the course of the limb; an elevated position.

Arterial sedatives should not be overlooked.

**COLD** is best adapted to small vessels, where there is a general



oozing—extremely well adapted to hemorrhage, from the uterus, rectum, &c.

STYPTICS are applicable to a large variety of cases, and act in various ways; some act by coagulating the blood; others by causing contraction of the mouths of the bleeding vessels; some by exciting adhesive inflammation; others by opposing a mechanical obstacle to the flow of blood. They are used in the same class of cases, as cold and pressure.

Our best styptics, are perchloride of iron, erigeron, tinct. ferri, chloride, turpentine, creosote, phenol, matico, ergotine, saturated solution of alum; and, if no remedy is convenient, the actual cautery, to a black heat, is a most potent styptic.

In all cases of arterial hemorrhage, the patient should be kept strictly in the *recumbent position*, and arterial sedation should be used with a combination of aconite, veratrum and asclepin; the limb should be well elevated, and my favorite remedy is a dry dressing.

SECONDARY HEMORRHAGE is a troublesome complication. It cannot result after acupressure, but is apt to follow the ligature generally; the sloughing of an artery from ulceration, spreading through the arterial trunk; it may occur from imperfect closure of the two inner coats when the ligature separates, through the influence of disease, a calcareous or ossified condition of the walls of the vessel, which prevents adhesion of its walls; in such cases, the only remedy is to cut down upon the vessel and tie it, and if too diseased, tie the trunk above, or, if the vessel is accessible, acupressure.

We have a species of secondary hemorrhage from stumps, after the wound has been bound up, and the patient has rallied from the shock; the circulation has become vigorous, and it frequently happens that numerous small vessels bleed. In these cases, *elevation, depression, keeping the pulse about 70*, is the best treatment; if the oozing is great, the wound should be opened, the surface sponged with cold water and exposed to the air for some time.

HEMORRHAGE DIATHESIS.—This is a constitutional defect of great importance in surgery; one in which the slightest wound bleeds uncontrollably, and life may be lost through a minor operation. The defect is in the blood.

The blood, in this diathesis, predominates in serum, does not coagulate, the capillaries are weak, and have no power of retraction when cut; there is also an inability in the system of such patient to take up the large amount of fibrin which is present in the blood.

The diathesis may be attributed to a want of power in the process of assimilation, the nitrogenous elements not finding their way to the proper set of tissues. The blood corpuscles are deficient in *number*, in *size* and *shape*; whether there is any peculiar power in the liquor sanguinis of dissolving the corpuscles, is not accurately known, and this is one of the problems modern pathology has to solve. In the urine of such patients, we find, by chemical tests and microscopical examination, some of the primary constituents of the blood.

In this diathesis, the greatest attention should be paid to prophylaxis, and, above all, warning those affected with the diathesis against

incurring any solutions of continuity, or any operations of great moment.

The treatment most successful is a highly nutritious diet, beef essence, to increase the quantity of fibrin in the blood.

The exhibition of cinchona, phosphorus, iron, erigeron, and alteratives—everything to produce a more equable proportion between the constituents of the blood, and preserve the blood globules in their normal state.

#### ANEURISM.

Aneurism consists in a dilatation of the parietes of an artery.

When all the coats of the artery are dilated, but not ruptured, the case is one of *true aneurism*.

The vessel is frequently thinner than natural, the middle coat is deprived of its elasticity, the vessel yields to the impetus of the blood. In other cases, the coats of the dilated parts are hypertrophied.

Dilatation, with rupture of one or more of the coats, constitutes the false aneurism of the books. The internal and middle coats are frequently ruptured; the blood comes in contact with the external or cellular sheath, dilating it to a pouch or sac.

The tumor thus formed, pressed upon the surrounding cellular tissue, condensing it, and thus acquiring an additional envelope, oftener much thicker than the cellular sheath of the vessel originally. The interior of the sac contains fibrinous coagula, arranged in concentric layers, the more exterior of which frequently become so dense as to be distinguished with difficulty from the parietes of the sac.

The varieties of aneurism are numerous, but the principal are—

1. *Aneurism by dilatation*, in which the whole circumference of the vessel is dilated.

2. *Sacculated*, also called true aneurism, in which one portion or side of the vessel is dilated into a sac.

3. *False aneurism*, in which the coats of a vessel have been ruptured.

4. *Mixed aneurism*, in which, after dilatation, general or partial, of all the coats of a vessel, the internal and middle ones burst, and a false aneurism is superadded.

5. *Dissecting aneurism*, in which there is laceration of the internal and middle coats of the vessel, separates them for a greater or less distance, and bursts externally, at some distance from the internal lesion.

6. *Hernial aneurism*, in which the middle and external coats are lacerated, and the internal protrudes through them, forming a hernial aneurism or sac.

7. *Aneurism by anastomosis*, in which an artery, by an unnatural communication with a vein, causes a pulsating tumor in the latter.

*Diagnosis*.—The distinguishing features of the true aneurism in the various arteries, are—extraordinary throbbing in a particular spot, occupied by a small, pulsating tumor, which disappears when compressed, but returns when that pressure is removed.

Without change of color in the skin, the tumor increases in size; and in the same ratio the pulsation diminishes. The coagulated blood lodged in the sac of the large aneurism prevents obliteration of the tumor by pressure, and lessens the communication into the artery beyond it.

The *pulse* below the swelling becomes weak, and the limb cold and œdematous.

In the chest, aneurism is known by an unnatural pulsation, felt by the patient, and detected by percussion, together with disordered circulation and respiration.

In the abdomen, an aneurismal burrow may be felt through the parietes.

Aneurisms pulsate from their earliest formation.

They are soft at first, and become hard subsequently; they can be emptied by pressure. Psoas abscess may be distinguished from aneurism by the pain in the back; its disappearance when the patient lies down.

*Progress.*—The tendency of aneurismal tumors is to burst externally or internally, into spaces where the least resistance is offered; but occasionally the clot of blood in the interior coagulates to such an extent as to close up the cavity, prevent an influx of blood, and causes a spontaneous cure.

*Causes.*—Aneurism, in all its varieties, is more common among males than females.

The *predisposing causes* are some constitutional tendency to arterial disease, as inflammatory irritation of the coats of the vessel, by which its elasticity and vital power of resistance are diminished; the habitual use of alcoholic beverages, increased action of the heart, induced by bodily or mental exertion; hypertrophy of the left ventricle, the result of inflammation, tendency to calcareous deposits, &c.

*The exciting causes* are, violent bodily exertion, sudden mental emotions, strains, blows.

The favorite situation of aneurism is in the aorta, near the heart; excluding this, the most prevalent positions are in the popliteal region, femoral, carotid, subclavian, and all over the arterial branches.

*Treatment.*—Nature's efforts toward the cure of aneurism is directed to the throwing out of coagulable lymph, which, with the fibrin of the blood, forms a layer, more or less organized, on the inner surface of the artery.

The treatment has been divided into *constitutional* and *surgical*.

The *constitutional* treatment is of great importance. Nature can be assisted in effecting a spontaneous cure by measures which promote the general health and improve the vital energies, but which restrain or retard the action of the heart; and diminish, as far as practicable, the volume of the circulating fluids, by reducing the proportion of watery constituents, without impoverishing the fibrin, or producing debility in the system. At the same time that we are tranquilizing the circulation, and preserving the blood in as rich a state as possible, it is well to remove all congestion of the liver, kidneys, and spleen, and keep up an active condition of the skin.

The reduction of the volume of the circulating fluids has long been considered indispensable in the treatment of diseases of the heart and arterial trunks, but, unfortunately, depletion has been too often the course adopted for this purpose. In a person reduced by organic disease, bleeding, to say nothing of its influence in depressing and rendering irritable the functions of the nervous system, has the effect of removing from the body a quantity of vitalized and organic matter, which it is probable the weakened power of nutrition may never succeed in reproducing; and, so far from this plan of treatment having the effect of relieving the blood-vessels from distension, has quite the opposite effect; for it has been demonstrated that, after bleeding, the system contains a larger amount of fluid than it did before, watery material having been absorbed to supply the place of that which is removed.

The desired object may be accomplished, and the fluid removed in these cases, by keeping up a gentle action of the skin, kidneys, and bowels.

Diminution of the fluids, rest, tonics, tend to preserve the power of the heart and vessels.

The administration, under the circumstances, of tartar emetic and other deleterious agents, having a direct tendency to depress the powers of the heart, cannot be too strongly and earnestly deprecated. Even digitalis is often used in organic disease of the heart and great vessels, with very mistaken views of the pathology of these affections.

Strict quietude of mind and body, a light, digestible diet, the careful avoidance of spirituous drinks and fermented liquors, are indispensable.

Change of air is beneficial, but all active exertion should be avoided; the digestive, excreting and secreting functions should be attended to.

The circulation should be kept at seventy, by such remedies as aconite, veratrum, gelsemin, asclepin, cactus grand; and by such a course we have often coagulation to take place within the tumor, and a cure is the result. If not successful, and the aneurism within reach, then the surgical treatment should be resorted to; and of all remedies, compression is the best.

*Compression* has been successfully used in the cure of aneurism, by diminishing the flow of blood through the artery without obstructing it.

A partial current through the sac, enables the fibrin to be readily entangled in the parietes of the sac, in the first instance, and this goes on increasing until it becomes filled; the collateral branches having become recently enlarged, the circulation is carried on through them.

The compression is best and most thoroughly effected by means of two or three small clamps, by which a graduated degree of pressure can be exerted; and when too much irritation is produced in one place, it is slackened while the necessary pressure is kept up by others.

This treatment has been very successful; it is always safe and applicable in nearly all cases that are accessible.



The duration of treatment is short.

The following conclusions embrace the chief points on the subject :

1st. Arteries, to which pressure is applicable, being far more frequently the subject of spontaneous aneurism than those in which it is inapplicable. Compression promises to supercede the ligature in nearly all cases.

*Pressure* has several obvious advantages over the ligature, being applicable to a considerable number of cases in which the ligature is contra-indicated or inadmissible.

The treatment of aneurism by compression, does not involve the slightest risk, and even if it should fail, it renders the chances of the operation by ligature more favorable.

Such an amount of compression is never necessary, as will cause inflammation and adhesion of the opposite surfaces of the vessel at the point compressed.

Compression should not be carried so far, even, as completely to intercept the circulation in the artery at the point compressed—the consolidation of the aneurism will be more certainly and quickly brought about, and with less inconvenience to the patient, by allowing a feeble current of blood to pass through the sac of the aneurism.

Compression by one or more instruments, one of which is alternately relaxed, is much more effectual than by any single instrument.

The cure is not tedious, and an aneurism cured by this method, is much less likely to return, than where the ligature has been employed. To apply compression successfully, it is only necessary to diminish the velocity of the current, so as to encourage the deposition of fibrin; it has the advantage of obliterating the aneurism perfectly, and the chances of gangrene are diminished. The cure is more effectual as the sac and artery leading from it become filled with fibrin, whereas, after ligature, a loose coagulum remains, which does not fill the sac.

*Cold* is excellent, and well adapted for certain cases; the application of a freezing mixture, or, what is still better, Richardson's anæsthesia.

Under any of these remedies, the skin soon begins to shrink, and by a little perseverance in the application of the remedy, the tumor disappears.

*Ligature.*—In cases where all the other modes of treatment fail, the artery is ligated. This should be performed on a portion of the vessel that is sound, nor too far away, lest the circulation in the artery be kept up by some collateral branch.

In ligating, be careful of the vein, the artery can alone be obstructed, without the death of the limb; but this is the invariable result, if both artery and vein are obstructed together. Arteries vary a good deal in their origin, and it is important that the ligature should be placed considerably below its lowest origin.

Tie always in a favorable position, and tie low enough, but not too near the aneurism.

*Electricity.*—This is one of our most trustworthy agents in the

treatment of aneurism. Tumors of all sizes have been treated successfully by galvanic currents.

The electric treatment is based upon the property given to living blood, of coagulating it at the positive pole. This, also, takes place with albumen.

In the operation, it is necessary to introduce the electro-puncture needle well into the centre of the aneurismal sac. One needle is sufficient. It must connect with the positive pole of the battery, while the other electrode may be a sponge, which should be applied to the skin on the opposite side of the aneurismal tumor, from the place where the needle enters. Then the continuous primary current from about twenty of Daniel's battery, is required to produce the coagulum; and to this end the current should be maintained for about half an hour.

We have found this mode of treatment highly successful. The needle should be gold or platinum, so as not to oxydize the blood, but an untempered steel needle, heavily platinized, will answer as well.

It is also advantageous for the cure of erectile, varix and sanguineous tumors.

Injections are highly esteemed by some; those that have been successful, have chiefly been the preparations of iron, such as the perchloride, peroxide; a few drops thrown into the tumor often produces instant coagulation.

*The treatment of aneurism by anastomosis and nævus*, which are analogous affections, may be embraced under three heads.

1. To induce atrophy of the growth by compression, astringents, and ligatures.

2. To excite inflammation in the tissue of the nævus, and thus obliterate the cells of the new tissue, by punctures, cauterization, vaccination, incision, injections of stimulating solution.

3. The entire removal of new growth by excision, complete destruction by caustics. The profession at large deem ligature, or destruction by caustics, the safest and best.

If the disease is inaccessible to any of these means, as in the orbit, and increases rapidly, ligature of the common carotid is the only resource, but, at best, it is a dangerous resource.

Little vascular spots on children's heads are often an object of anxiety, and are easily destroyed with nitric acid, caustic, potash, chloride of zinc, or inject the perchloride ferri, or lactate ferri; its component exists in the blood, its effects are not coagulation first, but thickening of the coats, with deposition of a coagulable lymph, from subacute inflammation being induced.

A solution of iodine gives very satisfactory results. Apply it freely, once daily; it does not excite the least constitutional disturbance; it scales off every two or three days, and thus disappears gradually till nothing can be seen. The practice of puncturing with croton oil, exciting adhesive inflammation, is resorted to by some; collodion and tannic acid, applied in the usual manner, is a good therapeutic agent.

## INJURIES AND DISEASES OF VEINS.

WOUNDS.—The hemorrhage from wounded veins is not in general dangerous, unless from some large and deep-seated trunk.

It should be restrained by pressure, and an elevated position. If there is any difficulty, unremitting pressure should be kept up.

Inflammation of veins, phlebitis, appears both as a spontaneous disease and after mechanical injuries. In the latter the termination is often in adhesion. This takes place most frequently at the valves, glueing the sides of the veins together and preventing farther mischief. The affected vessel may be traced as a thick, hard cord, and is very sensitive to pressure. When it is not limited in this manner, it is diffused, and is then a very serious disease.

The great danger is from discharge of pus, into the current of the circulation, giving rise to extreme depression, restlessness, hectic fever, and so forth, with secondary inflammation in other parts. The arteries are seldom separately inflamed, except from wounds.

*The treatment of phlebitis* consists in rest, with the limb in an elevated position, fomentations of stramonium, purgatives, diaphoretics, subsequently friction, bandages, and stimulating liniments.

The diffused phlebitis is a most dangerous and fatal disease, due to the absorption of pus into the blood. The symptoms indicate terrible prostration, faintings, shiverings, rapid pulse, anxious countenance, depression of spirits, catching pains about the heart, and more or less tenderness over the course of the affected veins. The tongue furred, dry, brown or black, pulse rapid and weak, prostration extreme, sallow skin, bilious vomiting, low delirium.

*Treatment.*—The principal indications are to apply fomentations to the affected parts; to open all abscesses, keep the liver, skin and kidneys active, support the strength by nourishment, beef essence, stimulants, wine, cinchona; bandaging the limb affords great relief.

VARIX is a permanently enlarged, and tortuous vessel. Swellings from this cause are for the most part venous, and may exist in various parts of the body, but are frequent in the saphena veins of the inferior extremities.

In varix, the veins are first affected with dilatation, and valvular insufficiency; then they distend, become tortuous and coil up. Several of these accumulate together, producing knotty swellings on the legs—superficial varicose conditions in the lower extremity arise after deep-seated varicose, of the corresponding part of the same. It may exist in the submuscular, without manifesting the disease in the superficial veins.

Varix does not begin in the subcutaneous vessels, or in the saphena interna, more than any other vein, but from deep-seated veins in general.

There is usually an original weakness of structure.

Varicose veins produce several disagreeable consequences; as pain, weight, fatigue in taking exercise, or remaining long in the erect posture. They are a frequent cause of ulcers and excoriations of the skin; sometimes they become thin and burst, causing a profuse and

fatal hemorrhage. Occasional inflammation occurs in clotting of the blood in the affected vein, which gives rise to abscess, ulcers, &c.

*Treatment.*—The treatment is usually divided into *palliative* and *radical*.

Of the radical treatment we have little to say, and much to condemn. The ridiculous absurdity of applying Vienna plaster, or any caustic, over the affected veins, needs only to be mentioned to be emphatically condemned. So is the practice of transfixing them with needles and applying sutures.

The most successful plan of treatment is by bandages, or the lace stocking; first bandage the limb tightly, from the extremity to the knee.

The best bandage is the lace stocking manufactured (*Fig. 45*) for the purpose. Under this apply cloths, wet with the fluid extract of hamamelis, and the same remedy might be given internally, three times a day. This is even better than oak bark infusion, which is so extensively used. Whatever treatment is adopted, the whole limb should be carefully supported with a bandage or lace stocking; these should be applied early in the morning; the cure should be accelerated by the use of galvanism, by frictions, and, when convenient, by keeping the limb in an elevated position.

If there is any ulceration, or predisposition to it, push cinchona, hydrastin, iron, &c.

A most excellent plan of treatment is bathing with a decoction of oak bark, or Pond's extract hamamelis, and encasing the limb in a bandage, saturated with starch or glue; this gives capital support to the swollen vessels. When this bandage is well applied it can be worn for weeks, were it not for the rapid subsidence of the swelling of the limb. It requires, however, to be frequently incased. This mode of treatment, in all respects, is superior, for effectual obliteration, to any of the modes by the radical plan of treatment, and possesses the advantage of being available in every case.

If there is ulceration, a window should be cut, corresponding to the sores, so as to admit of treatment without disturbing the limb.

Constitutional treatment, consisting of the exhibition of Pond's extract of hamamelis, cinchona, hydrastin, iron, muriate of platinum, generous diet, should not be neglected—ever bearing in mind that debility is the cause.



Fig. 45.



## PART IV.

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### DISEASES OF THE HEAD, SPINE, AND NERVOUS SYSTEM.

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#### INJURIES OF THE HEAD.

WOUNDS OF THE SCALP.—The scalp is much exposed to cuts and contusions, and liable to be seriously injured by them, because it is very abundantly supplied with nerves and blood-vessels, some of which communicate with the membranes investing the brain. Wounds of the scalp, be they ever so slight, are exceedingly liable to excite erysipelatous inflammation, which may extend over the whole head.

*In treating* wounds of the scalp, the first thing to be done is to shave off the hair for some distance round the wound. Remove all foreign bodies; wash away all coagulum; if there is hemorrhage, restrain it with pressure; sutures must be avoided. Ascertain with scrupulous care whether or not the bone be injured. After the bleeding has been arrested, dress the wound with lead ribbon and collodion, or gauze and collodion, and make an effort to obtain union by first intention.

The constitutional treatment should consist in acting on the secretions, exhibiting the arterial sedatives, and guarding the patient against erysipelas.

#### CONCUSSION OF THE BRAIN.

Concussion, or stunning, signifies an interruption of the function of the brain, caused by a blow, or other mechanical injury, to the head, and not necessarily attended with visible organic lesion of the brain, the continuance of the symptoms must depend upon the structural or molecular disturbance.

*Symptoms.*—The patient who, in a state of perfect health, receives a violent blow on the head, in an instant loses his consciousness, and lies dead to the world around him. In some cases, this insensibility lasts only for a few minutes, in others, for days. If questioned, he answers incoherently, and relapses into insensibility. After awhile he moves his limbs, as if in an uneasy sleep, and vomits, and immediately after recovers his senses.

In the severer forms, the insensibility is followed by relaxation of the extremities, coldness of the skin, irregularity and feebleness of the pulse, dilatation of the pupils, nausea, vomiting, features ghastly.

*Vomiting* is an important symptom, not being present in very slight cases nor in very severe ones; it is an indication of recovery.

If one or both pupils remain contracted, breathing weak and laborious, but free from start or snoring, these are unfavorable symptoms, characteristic of lesion of the brain. When the stupor and other primary symptoms have passed away, inflammation of the brain, of an active character, begins to be developed, and, if not arrested, it proceeds to a termination in effusion.

Concussion of other parts of the body may injure the brain; sometimes internal parts are distended or torn; pains arise, which increase the following day; violent headache, giddiness, pains in the chest, asthma, hacking cough, hemoptysis, pains in the back and abdomen, are the common symptoms.

The pathological condition of the brain, in a state of concussion, has been little understood.

That the functions of the organ are rendered very imperfect is evident from the insensibility of the skin—its coldness.

The same violence which produced the concussion, may cause fracture at the base of the skull. Such a complicated injury is denoted by bleeding from the ear at the time of the accident.

In some instances, the brain is bruised, ecchymosed or lacerated, but it is often fatal without any appreciable injury.

*Consequences.*—If reaction takes place in a normal manner, the circulation will become accelerated, and the patient will suffer more or less from headache, mental confusion, flushed face, hot head and feverishness.

If the concussion be severe, it may be followed by death, although this is not so common as a fracture of the skull.

The danger may be estimated by the nature of the injury, whether the spinal or ganglionic system be seriously implicated.

If the pulse and respiration are feeble; if the eye-lids do not move when irritated, and the legs are not drawn up when the soles are tickled, our prognosis is not favorable.

It is very apt to leave an impairment of the faculties, more especially the memory, also impairment of the senses, and a constant tendency to ridiculous and extravagant actions after excitement.

*Treatment.*—The first thing to be done is to rouse the patient from insensibility and collapse—to prevent inflammation, and restore the impairment of the mental functions.

Treat the patient as in collapse; friction to the surface, enclose the limbs in a bandage saturated with mustard, from the extremity to the knee, and some convenient stimulant to the spine; if depression is great, dry cup the entire length of the spine, and be very guarded in the use of stimulants; better to leave off than to be too officious; avoid administering stimulants and inhaling them, for very often the patient cannot swallow.

The great secret of success here is, to give the brain absolute *rest*, relying on nature's reaction, or in aiding her reactive power.

Depletion and stimulation have both been abandoned, as being destructive to the vital endowments, of the structure of the brain. The successful treatment requires perfect *rest*; absence of every kind of occupation is essential to recovery. After reaction has taken place, an emetic of the comp. powder of lobelia, acting on the bowels with podophyllin, juglandin, bi-tartrate of potassa, simplest food, no stimulants, salts or acids, but perfect rest.

If the pulse becomes excited, aconite and belladonna should be administered.

In all cases the head should be shaved, and kept cool by an evaporating lotion, and, as recovery is gradual, we should insist upon the patient keeping himself free from fatigue, intemperance and excitement.

If there are convulsions, belladonna and lobelia will meet the symptoms.

In order to remove the headache, deafness, giddiness, squinting, impairment of memory, tinnitus aurium, and other consequences of concussion of the brain, we would enumerate the following remedies: arnica, phosphorus, belladonna, or stramonium, cannabis ind., rhus rad., hyosciamus, gelsemin and cinchona, as being peculiarly indicated in certain cases.

## COMPRESSION OF THE BRAIN FROM EXTRAVASATED BLOOD.

The symptoms of compression of the brain are identical with apoplexy, insensibility, palsy, insensible dilated pupil, slow pulse, skin hot and perspiring, retention of urine, involuntary discharges, stertorous breathing, dilated pupil, or dilatation of one pupil and contraction of another.

*Causes.*—Compression may be produced by *three causes*:

1. By *extravasation of blood*.
2. By *fracture of the skull with depression*.
3. By *suppuration within its cavity*.

The symptoms of compression from extravasation of blood, generally show themselves as follows: the patient receives a blow or fall, becomes stunned, falls down, and entirely, or partially, loses the use of all his senses, while the vital functions, as the respiration and circulation of the blood, continue. The countenance is livid, the vessels of the face are turgid with blood; the breathing is stertorous; slow and laborious, though sometimes it is more rapid and vigorous; the limbs lie powerless; the pulse is slow, full and intermitting; pupils dilated.

If a large quantity of blood is extravasated, the symptoms of compression may instantly succeed the insensibility.

*Diagnosis.*—The symptoms of *concussion* follow the accident immediately; compression, from effusion of blood, may come on after an interval.

In *concussion*, the pulse is feeble; skin pale; the greater the insensibility, the feebler the pulse; in *compression*, after reaction, the pulse is slow and full; hot, perspiring skin; in *concussion*, stertorous breathing and muscular palsy are rare, but common in *compression*. In *concussion*, the pupil is variable, either contracted or dilated, or not insensible to light; in *compression*, it is always insensible and dilated.

*Treatment*.—Shave the head, and make an examination of the bare scalp, and if there be no signs of fracture, treat the case as one of apoplexy. Bleeding is now discarded from our art, as it has been clearly demonstrated that weakened and globular anæmia, the result of depletion, lead to extravasation.

The indications being to avert inflammation, and procure absorption of the blood. Plain cold water is best to the head; to the feet, a roller eight yards long, saturated with mustard of the consistency of cream, applied to each limb, and kept continuously applied; also, hemostasis to the groin; *free purgation*—colocynthin, podophyllin, and bi-tartrate of potassa; *as absorbents*—the iodide of potassa, gold, irisin, aconite, veratrum, phosphorus, laurocerasus, hydrocyanic acid; stimulants must be avoided, thorough hygiene should be the rule, and every precaution should be guarded against, to prevent a determination of blood to the brain. The diet should be spare.

In spite of the best treatment, the insensibility may continue, the lungs become stuffed up with mucus, the breath escaping from the corners of the mouth with a peculiar whiff; during expiration, the last resort left is to trephine.

FRACTURES OF THE SKULL are usually divided into those which consist of a mere crack or fissure, without displacement, into fractures with extravasation of blood, which generally accompanies fracture of the anterior, inferior angle of the parietal bone, and into fracture with depression.

Fracture of the base of the skull is most dangerous, being caused by falls from a height, the basilar process being snapped through by the weight of the body. In these cases, we have a sign of great importance to guide us, hemorrhage from the ear. This may depend upon various conditions, as a rupture of the membrana tympani, or lateral sinus, or of the carotid artery; it is strictly pathognomonic; however, a free discharge from the ear of serum after an injury. It may not appear till the second or third day after the casualty.

Simple fissure requires the same treatment as concussion.

Fracture, with depression, may be simple or compound, the latter being that which is attended with a scalp-wound exposing the fracture.

The symptoms are of easy detection, in the simple form; a depression or crepitus can usually be felt through the skin. But though we have a fracture with depression, still there may be no compression of the brain; the outer table may be depressed into the diploe. In the compound, we have the scalp wound, which can be easily examined by the fingers or probes; if some time has elapsed, we may have a considerable tumor, which may prevent a proper examination.



*Treatment.*—In a case of simple fracture, if there are symptoms of compression of the brain, the scalp should be divided, and the bone raised (*Fig. 46*) by the trephine. The necessary instruments for this operation, are a large and small trephine, (or cylindric saw), a Hey's saw, an elevator, and a scalpel. The other instruments which may be required, such as needles, forceps, &c., are found in a common pocket-case, which every surgeon should carry with him at all times. The operation is performed for fracture of the skull, with depression, causing compression of the brain; also for compression from extravasation, or suppuration, or tumors of the dura mater; and sometimes even for *irritation*, as when disease of the skull causes epilepsy.



Fig. 46.

In cases of extravasation or suppuration, the trephine used should be *large*, so as to allow the fluid to escape freely. *Small* ones may suffice on the other occasions. The first thing to be done is to *remove* a sufficient portion of the *scalp*, if that has not been done by the accident. Cut a flap in the shape of a letter D, raising the circular side. If there be any loose pieces of bone, remove them with forceps, completing their separation, where necessary, with Hey's saw. The *pericranium* is next to be separated from the surface of the bone, to which the instrument is to be applied; or a circular incision, for the edge of the instrument, will answer the purpose of preventing laceration by the teeth.

Apply the trephine so that the centre-pin will rest on a sound portion of the skull. Then press gently, and saw through, steadily turning the instrument backward and forward, but stopping and removing it frequently, to cleanse the teeth with a brush, and to examine the groove, which must be at the same time well cleansed from the saw-dust and blood, by means of a wetted sponge. Withdraw the centre-pin as soon as the groove is deep enough to steady the instrument. When you get nearly through the bone, be very cautious, and examine the progress very frequently, lest you cut through the *dura mater*. As soon as any point of the circle is through the bone, introduce the small end of the elevator, and endeavor gently to raise the whole. When nearly cut through all round, it will break off smoothly, and come away with ease. If it should still be very firm, introduce the trephine again, and saw a little more, taking care not to let the teeth touch at the point or segment, which is already cut through. Continue this cautiously, until the elevator can be used without too much violence.

The trephine should not be applied over the course of the middle meningeal arteries, nor over a *suture*, if both can be avoided; nor low down on the front portion of the head, unless absolutely necessary. After having removed the extravasated blood, or pus, or elevated any depressed portion of the skull, by prying with the elevator, as a lever,

against the opposite firm edge, as a fulcrum, replace the scalp, and secure it by a compress of lint or cotton. The part must be kept wet with cold water, or some other cooling lotion, before recommended.

But if there are no symptoms of compression, if the patient is conscious and rational, the constitutional treatment should be active and energetic. Give powerful cathartics, act freely on the skin, put the patient's feet in hot water, then the mustard bandage to the limbs, cups along the spine and the nape of the neck; cold water to the head, hemastasis, aconite, belladonna, &c., will be the appropriate remedies.

### FUNGUS CEREBRI.

After an injury of the brain, accompanied by the removal of a small portion of the cranium, there frequently arises a fungus, excrescent growth, from the substance of the brain, which grows luxuriantly, and presses outwardly through the aperture of the skull.

*Treatment.*—Its growth must be checked or repressed as soon as it is discovered, and the growth restrained, until the dura mater covers it.

Wet a piece of lint with lime water, and apply it to the fungus, over this a compress, and adhesive strips; compress firmly the protruding growth.

Continue this process until the fungus is restrained within the dura mater, where it must be steadily maintained until the membrane heals over it.

### DETERMINATION OF BLOOD TO THE BRAIN.

This is often the sequel of these affections of the brain.

*Symptoms.*—Great heat of head; flushes of heat; sensation of fullness in the head; confusion of mind; loss of memory; vertigo; noise in the ears; deafness; spots before the eyes; oppression at the chest; faintness; numbness of the extremities.

*Exciting Causes.*—There are certain well-defined causes which produce a determination of blood to the head, as diseases of the heart, debility, mental labor, diseased condition of the brain, immoderation and irregularity in eating and drinking, &c., &c.

*Treatment.*—The arteries of the head are felt to beat synchronous with the heart; the veins of the head and neck swell; the head feels full; the patient feels dizzy, especially when stooping; the eyes seem ready to burst. There is sparkling or muscea volitantes before the eyes; objects seem double; buzzing in the ears; perhaps fainting.

*Aconite, belladonna, digitalis, cactus, asclepin,* are the grand remedies; cold ablutions to the head, and the mustard roller to the extremities; a rigid abstinence from all stimulants, even tea and coffee. Several times daily, friction to the surface, otherwise treat the case on general principles.

## COUP DE SOLEIL.

This is a common affection in the summer, when the thermometer reaches from 90 to 100 degrees.

It is, perhaps, true, that an enfeebled, nervous system, depressed vital power, the result of severe physical exertion, or sickness, may be a predisposing cause. The hypothetical pathology of this affection, is that the action of the heat on the human system generally, causes an engorgement of the blood in the lungs, which creates a difficulty of respiration, stagnation of the circulation; and that this same action of heat on the brain, is productive, also, of cerebral syncope, or paralysis of the nervous system; a lack of serum in the blood—that element containing a large excess of fibrin.

*Symptoms.*—The feelings of approaching sun-stroke, are giddiness, tension, heaviness of the head, ringing in the ears, disordered vision, faintness, difficulty of respiration—if relieved when these symptoms appear, the attack may be warded off, but if not, then loss of consciousness; frequent, sharp, irregular pulse; in some cases, soft, small, compressible; respiration laborious, but not stertorous; in most cases the face is dusky, and the head hot; nausea, vomiting, and involuntary discharges. These symptoms may continue to increase, and in the course of a few hours the patient dies, or they gradually pass off, the patient regaining his consciousness, but being excessively feeble, and taking a long time to regain his strength; dizziness or syncope on the slightest mental or physical exertion.

*Diagnosis.*—This is not usually difficult; exposure to the heat of the sun, difficult respiration, sharp and frequent pulse, heat, and redness of the face and scalp.

*Prognosis* is usually favorable in a large majority of cases. If the pulse is regular and respiration good, there is not much danger, if the treatment is active; if the pulse is rapid, irregular, very small, the countenance of a dusky, leaden hue, the lips purple or livid, with labored respiration, the patient in all probability will die.

*Post mortem.*—The blood is dry and clotty, black, devoid of serum, excessive engorgement of the lungs, indeed, complete obstruction of the pulmonary circulation, interstitial apoplexy, very little cerebral congestion, &c.

*Treatment.*—Remove the patient at once to the shade or a dwelling, let him have plenty of fresh air, keep away all excitement.

Then apply tepid water to all the surface of the body or pack it; give an enema of the same; also diluting drinks, water supplies to the blood, its proper constituent; it should be used freely. If this is not successful in a short time, the extremities should be rubbed with stimulants, a sinapism applied and Firminch's method should be applied to the spine and epigastrium.

For the purpose of rousing up nature's energies, a stimulating emetic, followed with the tincture of xanthoxylum or brandy; repeat the tepid enemas every half hour. As soon as the most violent symptoms are controlled, aconite, in alternation with brandy and quinine, or belladonna, bryonia, hydrastin, scutellarin, according to the indications.

Nitro-glycerine is highly spoken of, but I can say little in its favor, in this hitherto unmanageable disease; some use it with implicit confidence.

If the face continues flushed, the head hot and throbbing, then cupping the back of the neck and spine will be useful, at the same time act freely on the skin, kidneys and bowels, and keep up a mild but steady action on the three great emunctories.

A mild alterative and tonic course should be enjoined for months; our best tonics here are *cinchona*, *hydrastin* and *phosphorus*.

## INFLAMMATION OF THE BRAIN.

Inflammation may affect either the membranes of the brain, or the brain itself.

It is called *primary* or *idiopathic*, when it exists independent of any other disorder, and *symptomatic*, when it arises from some other disease. The causes which give rise to idiopathic inflammation, are such as directly stimulate the membranes or substance of the brain, or increase the impetus of the blood in its vessels; *hence*, violent fits of passion, intense study, severe exercise, external violence of every kind, as blows, concussion, fissure, fracture, are most frequent causes.

Inflammation of the brain rarely makes its appearance until the sixth or seventh day after the injury, frequently later.

Its symptoms are very various as also its progress, sometimes being sudden, terminating rapidly in destructive suppuration; in other cases the disease exists in a low, insidious form, and is terminated either in coma or palsy. The incipient symptoms are pain in the head, acute pains in the neck, extending to the head, aggravated by heat or motion, or anything that causes excitement of mind or body, with a disagreeable sense of weakness, languor, confusion of ideas, quick, irregular pulse, nausea, want of sleep and appetite, and alternately flushing and paleness.

After these symptoms have lasted forty-eight hours there is usually a most intense rigor, with burning skin. The *eyes* are sparkling and are violently agitated; there is a ferocious appearance of *countenance*, with universal restlessness; deafness; violent ravings; intolerance of light; violent pulsation in the temporal and carotid arteries, and the most furious delirium; if the patient is conscious, he complains of the headache, as most intolerable and throbbing; the pupils are contracted. The *tongue* is dry, rough, of a yellow or black color; the face is deep red; the pulse small, quick and hard; the bowels are obstinately constipated, and there is incessant vomiting. If these symptoms are unrelieved by any remedy, great prostration of strength, terminating in stupor and insensibility, will take place, the pulse loses its force, becomes slow and oppressed, or excessively rapid; then we have the characteristic grinding of the teeth; squinting; low delirium, white or ash-colored fæces; suppression of urine; startings of the tendons; convulsions, cold sweats, fluttering pulse, coma or palsy supervening on delirium.



Rigors, squinting, dilated pupil, stertorous breathing, coma, palsy, indicate a fatal termination.

If the cortical substance of the brain and membranes are affected solely, we have early derangement of the intellectual faculties, with fixed pain in the upper part of the head.

If the medullary substance is affected, the intellect is more clear, but loss of motion is more apparent, clearly proving that the cortical or cineritious substance is closely connected with the intellect, while the medullary presides over muscular power. So that, in an injury of the head, if the intellect is only impaired, we may reckon the hemispherical ganglion is the seat of the injury; while, in addition, if there are involuntary convulsive movements after the accident, we may be certain that the medullary substance has suffered.

Inflammation of the medullary structure is more prone to terminate in softening, muscular paralysis, loss of sensation in the parts affected.

*Disease* of the lateral lobe of the cerebellum induces paralysis of the opposite side, and of the lower extremity chiefly; *disease* of the middle lobe of the cerebellum, is denoted by the erection of the penis; *disease* of the medulla oblongata induces paralysis of the respiratory muscles.

*Causes*.—Mental emotion, injuries, mental exhaustion, stimulants, diseases; predisposing causes are, plethora, want of exercise, high living.

*Pathology*.—Pathology informs us that the first effect of the process of inflammation upon neurine is to excite or exalt to an unnatural degree, exactly by the same kind of power which resides in it in the normal state.

The first effect, then, of inflammation of the surface of the brain is, to excite the faculties, to produce great irritability of temper, restlessness, and desire for action. If the inflammation is arrested at this point the patient recovers his reason; but if it pursue its course undisturbed, limiting its destructive effect to the spot where it commenced, without extending to that portion of the brain which is beneath, it annihilates the intellect, but does not affect the muscular system. But, if the inflammation travels farther, reaching the medullary, by which the will travels to the muscles, it first produces convulsive action in those muscles which afterwards become perfectly paralyzed. In these cases, the integrity of the neurine, through which volition travels to call those muscles into action, is compromised, and its power, therefore, as an instrument for the production of voluntary motion, is destroyed.

The first symptoms of inflammation of the tract of sensation is, exaltation of the sensibility of the part, both where the nerves of sensation originate, and also in the brain itself, where they terminate.

The first effect of increased arterial action of the hemispherical ganglion is to exalt the intellect.

It is very evident that the hemispherical ganglia are intimately connected with the intellectual powers; and it is in them specially, and not in the whole cerebral mass, that these powers reside.

The medullary substance beneath is in all probability merely the passive servant of the cineritious substance, as the conductor of its

commands to the muscles, or of the various impressions made on the peripheral extremities of the nerves of the senses which the central power receives and with which it works.

The gray substance of the brain presides over intellectual phenomena, and the white over movements. In proof of the statement that the seat of intelligence is in the cortical substance of the superior part of the brain, we have the dissection of the insane, who always exhibit a disorganization, more or less deep, of that portion of the brain. In the diagnosis and treatment, it is impossible to separate between inflammation of the membranes, hemispherical ganglion, or cortical substance.

*Treatment.*—The principles of treatment are, at the very onset of the disease, to treat it judiciously and promptly. The ligatures should be applied to the limbs, and aconite, the great specific, should be liberally given internally, and if it does not act quickly, combine with veratrum. Apply mustard from the toes to the knee, sponge the surface every hour with the alkaline wash, cup the spine and nape of the neck, shave the head and apply cold water to it, keep it cool permanently, or apply evaporating lotions; but plain cold water is the remedy. The cold douche is also excellent. Act freely on the bowels with the following :

R $\bar{y}$ .—Podophyllin, gr. i;  
Ext. jalapin, grs. vi;  
Co. extract colocynth, gr. x;  
Oleum gaultheria, gtt. iii;  
Syrup simplex, ʒss.—*M.*

and give at a dose. Repeat if necessary.

There is usually obstinate constipation; this must be immediately relieved by enemas of colocynth and podophyllum; free and frequent evacuations should be the rule. Indeed, in all forms of the disease, active purging appears to be the means from which we derive the most satisfactory results. If the symptoms do not yield, keep on with the treatment, for more recoveries from head affections of the most alarming character take place under the use of the above remedies than any other.

Belladonna has a specific action upon the cortical substance, the tubercula quadrigemina, and the membranes of the brain, given with or alternated with the aconite. *Cannabis indica* has also a special action upon the great nerve centres; it is a sedative of the highest order; it calms, relaxes and vitalizes the whole system.

Hyosciamus, stramonium, musk, are also valuable remedies where the extreme symptoms are manifest. The other remedies to be relied on are opium, chloride of gold, bryonia, rhus radicans, lobelia, digitalis, &c., &c. During the whole course of the disease, the patient should be kept cool, and as quiet and as undisturbed as possible, excluding heat and light, keeping the shoulders well elevated, maintaining thorough hygiene, food light and nourishing, fresh air, &c.

The treatment of inflammatory affections of the brain in children requires the nicest tact and good judgment, both as to the remedies to

be used and the manner of applying them. The period of life modifies the action of the medicines, and, from the susceptibility of the intestines of children to assume a state of irritation, with which the brain quickly sympathizes, the use of purgatives must be resorted to with caution.

The various results of inflammation of the brain are numerous, as abscess, induration, softening, &c.

### WHITE SOFTENING OF THE BRAIN.

Cerebral anæmia, long continued, produces softening of the brain. *Ramollissement*, or softening of the brain, proceeds from inflammation. It resembles gangrene. But, while softening is thus produced, it sometimes depends on other causes; from exudation, which is infiltrated among the elementary nervous structures; from a mechanical breaking up of these structures, by hemorrhagic extravasations; from fatty degeneration of the nerve cells, independent of exudations; from the mere imbibition of serum, which loosens the connection between the nerve tubes and cells; from mechanical violence, in exposing the nerve centres; from putrefaction.

*Diagnosis.*—Softening of the brain may supervene suddenly upon an attack of inflammation, or it may come on in a gradual and imperceptible manner. Insensibility, dilated pupils, slight, muttering delirium, paralysis, contraction of the flexor muscles, constipation, uræmic odor, gradual failure of the memory, œdematous state of the body, wandering, general languor; slow, dragging and imperfect articulation; constipation, loss of energy and ambition.

*Causes.*—Over-exertion; anxiety; excessive sexual indulgence; stimulants; depression, anything that cuts off the normal supply of the blood; disease in the coats of the arteries, as a deposition of earthy and fatty matter in the walls of the vessels; these and other depositions impede the blood in the capillary vessels of the brain, preventing nourishment, which then pass into a softened state.

*Prognosis.*—*Ramollissement* of the brain has been considered a fatal disease, and is still so when treated with depleting measures, the vital powers becoming exhausted. In earthy, fatty or calcareous degeneration of the coats of the blood-vessels, it is still hopeless. But pure softening may be repaired, and a cure effected.

*Treatment.*—The grand secret of success is to improve the general well being of the patient, improve the blood and neurine by every possible means in our power. Diffusible stimulants should be given every hour, as ammonia, xanthoxylin, C. tinct. capsicum et myrrh, but not pushed so strong if hemiplegia has supervened. Stimulate an appetite if possible, by wine, hydrastin, cinchona and other tonics. If there is the least disposition to sinking, stimulants are our only resource, as slow pulse, fainting, fits, convulsions, denote anæmic debility. Let the diet be generous to a fault; animal food should have the preference, adding to it iron and phosphorus, and other tonics. The tonic and stimulating plan of treatment always improves, frequently cures. To meet special symptoms, such remedies as

cyripedin, scutellarin, hyosciamus, ergot, cinchona, hydrastin, belladonna, nux vomica, phosphorus, are of the greatest value.

CHRONIC INFLAMMATION OF THE BRAIN is prone to follow an acute attack, or it may come on independently.

The phenomena which it presents are diversified. We find either great mental excitement or depression; some absurd desire to be gratified, and, indeed, we have symptoms strongly allied to insanity. Slight hesitation in speaking, slight headache, loss of appetite, constipation, irregularity of the pulse, and as the disease advances, evidences of cerebral disorder become fully developed; the memory fails, the senses become impaired—paralysis shows itself, the health gives way.

Chronic meningitis may run its course in a few months, or may last for years. Our treatment should be such as will meet the symptoms very decidedly, at the same time, we try, by energetic hygienic means, to support the general health.

ACUTE RAMOLLISSEMENT, OR RED SOFTENING OF THE BRAIN, is one of the terminations of the inflammatory process; being often due to both the acute and chronic form of inflammation. The softening is usually partial, the parts affected become pulpy, and ultimately of the consistence of cream. It is recognized by the occurrence of paralysis with spasm; or by permanent contraction of the flexor muscles of one or both extremities. If it results from inflammation, the corpus callosum, septum lucidum, fornix, and the cerebral substance surrounding the ventricles, are the parts which suffer. In these instances, the softened matter is infiltrated with pus, while, in some cases, the purulent matter is contained in a well defined cavity, forming abscess of the brain. *Red* softening is the result of inflammation; *white* softening of the cerebral substance, is the opposite condition to the inflammatory, owing to a morbid process, and a deficient supply of blood. The gray matter of the convolutions at the base of the brain are the parts affected. Imperfect nutrition of the brain is usually due to fibrinous deposit in some vessel which impedes the supply of blood.

INDURATION is frequently the result of either acute or chronic inflammation; the indurated portion is of small extent, and the change is due to a deposit of albumen.

## CONGESTION OF THE BRAIN.

This may arise from any cause which disturbs the circulation, as the poison of the eruptive fevers, the irritation of teething, and a great variety of causes.

The symptoms are, uneasiness, restlessness, irritability, disturbed sleep, heat of the head, and pain, which is increased by noise or movements, tension and prominence of the anterior fontanelle, general feverishness, vomiting, and frequently constipation. At the end of a few days, it may be that the disturbance will cease, and the symptoms disappear; or, in more serious cases, we may have the congestion terminating in those formidable maladies, hemorrhage, or effusion, or acute hydrocephalus.



*Treatment.*—This will be varied to meet the indications and circumstances under which the congestion occurs. In all cases the symptoms should be controlled if possible; counter-irritation to the extremities, and put the patient thoroughly under the influence of aselepin, aconite and belladonna. Apply over the back portion of the head cloths saturated with the following mixture:

Ry.—Aqua dist., 0ss;  
 Chloride sodium, ʒi;  
 Hartshorn, ʒi;  
 Spirits camphor, ʒii.—*M.*

Change frequently. If there is not much depression, active purgation, clean out the intestinal tract, and if there is any suspicion of a loaded condition of the stomach, an emetic of the comp. powder of lobelia. Sleep should be induced, if possible, by the inunction of morphia, incorporated in glycerine, under the axilla. Quietness, plenty of fresh air, a cool apartment, are essential.

Many of our profession begin the treatment with emetics; the ipecac in syrup, or the infusion; the powder suspended in syrup, or sweetened water. After full emesis, the feet are immersed in warm water for ten minutes, then apply to the feet and body a vapor bath, (if no other way, hot steamed stones or bricks,) using relaxants and diaphoretics internally, such as will not make direct impressions on the brain. Induce and maintain free perspiration upon the *whole* surface of the body; if necessary, carry the relaxants of ipecac, lobelia, &c., to vomiting, water or liniment to the head, and sinapisms to the spine—use cathartics and diuretics.

In merely passive congestion, occurring during the paroxysms of whooping-cough, or from some abdominal cause, I have found the anti-spasmodic tincture in alternation with hydrocyanic acid highly useful; attending to the secretions, and giving irisin, gold and phosphorus. At the same time, the warm salt-water bath, keeping the head cool and the body warm, and establishing convalescence upon bark, hydrastin, &c., nourishing food, beef tea, and soothing or allaying any irritability that may exist.

But if effusion terminate either in cerebral or meningcal apoplexy, the principles of treatment do not vary. A cooling lotion to the head, sinapisms to the extremities, the arterial sedatives, aconite, veratrum; and if prostration supervene, stimulants. As a general rule, cerebral diseases occur most frequently in children of the scrofulous diathesis, and this constitutional taint modifies the disease. The treatment of diseases of the nervous system in children requires the nicest discrimination and judgment. We have tender bodies to deal with; the period of life modifies the action of medicines, and an error in prescribing is usually serious. No child should be treated with depressing remedies; they are dangerous, and many have been sacrificed at this altar. There are several good landmarks. *Arterial sedatives*, to lessen or reduce vascular action; the *warm bath*, a powerful agent for relieving the circulation; *mild purgation*, to reduce the heat, remove obnoxious

matter, and encourage a flow of bile; *diuretics*, to promote a copious flow of urine; and, in the advanced stages, gold, irisin and the C. alterative, with iodide potassium, for the purpose of absorption.

## TUBERCULAR MENINGITIS.

Acute inflammation of the brain is a very common disease of early life,—in children under five years of age, of a strumous habit. It is due to the deposit of tubercle on the brain and its membranes.

*Symptoms.*—These are various and uncertain. There are three stages:

1st. The strumous habit, imperfect nutrition, dry cough, peevishness, intolerance of light and sound, headache, giddiness, warnings of cerebral congestion, fever, exacerbations and remissions, skin hot; appetite capricious, bad or voracious; tongue furred, and the breath offensive. There is nausea, vomiting; bowels disordered, generally constipated. The child is drowsy, restless, sleeps badly, moans or grinds its teeth, screams, and wakes suddenly in alarm; often delirious.

2d. If these symptoms prevail for a few days unchecked, we have it merging gradually into the second stage, when its nature becomes very apparent. Then the child remains quiet in bed; its countenance expressive of anxiety and suffering, and is alternately flushed and pale; eyes closed, eyebrows knit; light and noise intolerant. If old enough, it complains of headache; pulse is irregular; stupor and heaviness come on; there is often squinting; the little patient lies on its back, insensible, perhaps, picking, with tremulous fingers, his nose and lips; convulsions frequently occur,—so does paralysis.

3d. If it last a week or more, drowsiness, profound coma, feeble pulse; extremities cold, clammy; and convulsions or paralysis terminate the scene.

The cerebral substance contains serofulous tubercles, while granular deposits are scattered upon and between the membranes. But the characteristic morbid appearance consists of softening of the central parts of the brain, with effusion of thin, watery serum into the ventricles.

*Treatment.*—In all cases, warm baths, the application of dry mustard to the limbs, stimulating the bowels and kidneys by efficient but mild remedies. After having obtained thorough secretion and excretion, put the patient upon full doses of the iodide of potassium,—say from three to five grains every four hours. Keep the following lotion on the head:

R.—Liquor ammoniæ acetatis, ℥iii;  
Dilute alcohol, ℥ii;  
Aqua rosæ, ℥vii.—M.

Otherwise the treatment of hydrocephalus should be adopted.

## HYDROCEPHALUS.

Fever, pain in the head, particularly across the brow; stupor, dilatation of the pupils, suffused redness of the eye, great sensibility to light, nausea, vomiting; the pulse quick, then slow, and convulsions, are the usual symptoms of this disease. But these are liable to great variation. More generally it begins slowly; a slight wasting of the flesh, a troublesome cough; then cerebral congestion, with fever, which is of a remittent type; skin harsh and dry, appetite variable, thirst, furred tongue, breath offensive, nausea, vomiting; bowels are disordered—usually constipation,—and the evacuations deficient in bile. If the child can walk, it is easily fatigued; has attacks of giddiness, and in walking, seems to drag one leg. It is drowsy, but very restless; it sleeps badly, moans or grinds its teeth, screams, and awakes suddenly in alarm, without any apparent cause.

As the case progresses the symptoms become established: the child remains in bed, has a most expressive countenance, indicative of anxiety and suffering; its eyes closed, eyebrows knit, and is annoyed by light and sound. Symptoms aggravated at night, mind wanders, delirium, stupor or insensibility, tickling at the nose and lips; convulsions, or profound coma, usually terminate the scene.

*Prognosis.*—This is highly unfavorable, even under the best treatment. The average duration of the disease is about twenty-one days. If the patient cannot be raised up in bed without great uneasiness, it is a bad symptom; so is deafness, dilatation of the pupil of either eye, or squinting, or both pupils much dilated, a fatal termination is denoted. Stertorous breathing; coma, with loss of sight; enlargement of the head, difficult respiration, intermitting pulse, involuntary evacuations, are unfavorable.

Prophylactic treatment is most to be depended on; for if the disease is once established, medication is of little avail. If we have scrofula or tuberculosis, as the diathesis of the mother, she should be forbid nursing the child; it should be reared by a healthy nurse, or on the milk of a good cow; warmly clad; have the benefit of the country air or the sea-side; and it should be carefully watched at weaning, and shielded, as far as possible, from the contagion of the eruptive fevers, &c., whilst the diet should be rich in the elements of blood.

*Treatment.*—But if we do not see the patient until the disease has set in, then the treatment to be adopted should vary according to the symptoms which are present. If it is marked by an increased or inflammatory action in the vessels of the brain, then aconite, aconite and veratrin are indicated, and should be given to lessen congestion, to diminish arterial action; and this combination should be given, and persevered with, as long as any marked symptoms of congestion continue.

Purgatives and diuretics, by lessening the determination to the head, will be necessary in all cases. They are peculiarly indicated by the fetid stools; podophyllin, leptandrin and bi-tartrate of potassa, in doses sufficient to obtain the desired result. Judicious counter-irritation at the back of the neck, and even keeping up a discharge by the

veratrin ointment or podophyllin, sprinkled on the denuded cutis, operates favorably.

To aid re-absorption, irisin rarely fails to produce a good effect. The local employment of cold is an important remedy early in the disease; later, the evaporating lotion, or cloths wet with tepid water.

My favorite remedy in hydrocephalus is digitalis, which I give in all stages of this disease, with marked benefit. Whether it relieves by diminishing arterial action, or by its power as a diuretic, I am unable to say; certain it is, that good effects attend its use. The best mode of administering it, is beginning with moderate doses, and increase till the system is thoroughly effected. Give it with aselepin.

It has been often asked whether vomiting might not be of utility in aiding in exciting absorption. In all cases of encysted dropsy, little advantage can be derived from the action of emetics, but more particularly in that of the head.

After the acute stage of the disease has been controlled or subsided, every means of supporting the strength should be embraced, which is to be done by tonics, port wine and water, or port wine and beef tea. The diet should be light, but not poor; beef tea, white of egg. Liebig's food, arrow-root; and if sickness causes all food to be rejected, iced champagne is exceedingly useful. Should the vital powers become depressed, stimulants must be freely given.

If inflammation of the brain supervene, (which is usually known by the suddenness of the attack, partial or general convulsions, fever, and as the convulsions diminish the child becomes comatose, vomiting, stupor, complete abolition of intelligence, subsultus tendinum, strabismus, squinting, contraction of the pupils, and, perhaps, hemiplegia, quick irregular pulse, open bowels, the motions passed involuntarily, the face pale, and the expression vacant,) then we must rely upon cold to the head, the use of purgatives, irisin, iodide of potassium and counter-irritation.

If the case should merge into one of chronic hydrocephalus, which is usually marked by the impaired bodily functions, convulsions, twitching of the muscles of the mouth, rolling of the eyes, enlargement of the head, wasting in flesh. The infant nurses greedily, and yet gets weaker.

The treatment which I have found most successful, consists in the administration of irisin and gold, giving diaphoretic and diuretics, with counter-irritation, cathartics; and convalescence is best established upon quinine and hydrastin in small doses, and a general alterative course.

## CEPHALALGIA.

Headache is but a symptom depending on various causes, and is connected with different conditions of the circulation in the brain; it is a prominent symptom during the progress of most acute and many chronic diseases. The pain is in the head, and is to be distinguished from the suffering due to rheumatism or neuralgia, or inflammation, or syphilitic disease of the pericranium and bone. There are a great



variety of headaches, but the principal may be embraced under three heads—*plethoric headache*, *bilious headache* and *nervous headache*.

Headaches, of whatever kind, occur more frequently in persons of adult life, than in extreme youth or advanced age; dwellers in towns suffer more than residents in the country; females more than males; the nervous and delicate more than the robust; the wealthy more than the poor; absence or neglect of hygienic means is a cause.

**PLETHORIC HEADACHE.**—This is connected with fullness of blood in the cerebral vessels; they are congested; there is pulsation in the ears; giddiness on stooping. Persons who live too freely, eat late suppers, and lie long a bed in the morning, are liable to it; also middle aged men who make blood too fast, and young ladies with irregularity of the catamenia. Exhaustion from fatigue, loss of blood, over-excitement by mental exertion or bodily exercise, all tend to produce a state of debility in the vessels of the brain which favor congestion. Headache which attends epileptic attacks is usually associated with cerebral congestion. Indeed, all the predisposing causes of headache occasion some degree of congestion and compression of the veins of the fifth pair of nerves, especially of the ophthalmic branch, in the external wall of the cavernous sinus.

*Symptoms of plethoric headache.*—Throbbing and heat; the pulsations of the arteries of the neck visible; vomiting as the pain increases; pain worse in shaking the head; lying down or stooping; sometimes better when standing.

*Treatment.*—Bathe the head with water and vinegar, moderately cold; bathe the feet with warm water, and, after drying, rub with dry mustard; continue this once a day. Sponge or bathe the entire surface daily, act upon the bowels with podophyllin and nux vomica, and treat the headache according to indications. For example, if the pain is very severe, burning over the forehead, face red, bloated eyes, suffused, give aconite and alternate with belladonna; if the pain is oppressive on one side, worse when walking, give cypripedin, and alternate with pulsatilla; if complicated with catarrh, frontal headache, eyes full of tears, sneezing, dry heat in the nose, chills, cough, aconite, belladonna, asclepin, will give immediate relief; if the pains are tearing, beating all over the head, feels as if coming apart, and a rheumatic diathesis is suspected, macrotin, potassa, epecac, colchicum, quinine, coffee, nux, rhus.

**BILIOUS HEADACHE.**—This is either temporary or constant. When temporary, it usually arises from some error in diet, excess—severe in the morning, and passes away as the cause ceases. The constant bilious headache occurs in persons of a weak stomach, torpid liver—persons who suffer from indigestion. The stomach, duodenum, liver, are out of order, as is shown by the coated tongue, offensive breath, flatulence, depression of spirits, nausea, but seldom vomiting.

*Treatment.*—Thorough secretion and excretion, hygienic, baths medicated with nitro-muriatic acid, acting on the proper organs, with small doses of podophyllin, leptandrin and nux vomica; or, if debility of the stomach be suspected, nitro-muriatic acid, pepsin, epecac, qui-

nine, cypripedin, bryonia. If the indications demand it, an emetic of lobelia is invaluable.

**NERVOUS HEADACHE.**—This is often due to debility, exhaustion, anemia. There are numerous varieties of nervous headache: hemicrania, sick headache, neuralgic headache, hysterical headache.

**SICK HEADACHE** occurs most frequently in literary men, intellectual females between the age of puberty and forty. It is peculiarly tenacious. It begins early in the day; the vision is disturbed, and a distressing, oppressive pain in the head, centering in one temple, most frequently the left; tenderness and fullness of the eye of the same side, extending to the forehead; chilliness of the skin; cold and moist hands and feet; pulse feeble; face pale; flatulence; retching, shuddering and vomiting of the contents of the stomach, or of a thin, glairy fluid, of an acrid, sour taste. The vomiting gives partial relief, and in some cases antacids may restore it to a normal state.

**SICK HEADACHE** is distinguished by the predominance of the gastric symptoms. It has not periodicity like intermittent neuralgia. It is distinguished from dyspeptic or bilious headache by being more severe, by the condition of the tongue, &c., &c. The same general principle of treatment should guide us here as in the other varieties.

*Sanguinarin* often cures this form of headache when accompanied by persistent nausea, redness of the tongue, burning sensation in the throat, chest and stomach. *Leptandrin*, *leontodin*, *eupatorin*, *gelsemin*, *veratrum*, *scutellarin*, *cypripedin*, are the best remedies in this form of headache.

**HEMICRANIA** is a neuralgic headache, caused by a dynamic disturbance of the fifth pair of nerves. The symptoms vary according to the seat of the affection, which is sometimes at the peripheral, sometimes in the central end of a certain branch of the nerve. It may be sympathetic; irritation of the viscera affects the fifth pair.

The attacks are periodical. The pain is felt in one side of the head, forehead, supra-orbital, and temporal region, extending to the orbits, sometimes relieved by pressure, at other times extremely sensitive. There may be nausea and vomiting. The paroxysms begin early and cease at night. The left side is more frequently attacked than the right. It may be preceded by vertigo and other symptoms of mental disturbance.

The neuralgic character of the pain, its periodic recurrence, absence of cerebral functional derangement, and febrile symptoms during the paroxysms are characteristic.

**Causes.**—Nervous, irritable temperament, exhausting pursuits, mercurial dyscrasia, &c.

**Treatment.**—In hemicrania, regulate all the secretions by the proper remedies, inculcate thorough hygiene, and exercise, &c. Then put the patient at once upon belladonna, which has a specific action on the brain and fifth pair of nerves, more particularly on the branches, frontal, lachrymal and nasal.

If it does not respond promptly, alternate with *nux vomica*, which has a peculiar action on the trifacial sympathetic nerves.

If the pain is jerking, throbbing, fullness and weight in the forehead, bloated and red countenance, aconite should be resorted to.

*Irisin* acts on the ganglionic system, and the form to which this remedy is applicable is, where there is plethora, it might be combined with podophyllin, which has great power over the splanchnic nervous system.

*Cyclamen*, if there is vertigo, and alternate with belladonna.

*Spigelia*, if gout or rheumatism be mixed up with the symptoms.

*Pulsatilla* is peculiarly adapted to hysterical constitutions.

*Coffee*, where the pain is excessive, increased by eating; patient sensitive to noise, chilly, shuns the air.

*Capsicum* is one of our best agents, if the disease occurs in a patient of lax muscle and phlegmatic temperament.

*Cinchona*, where there is aching in the temples, mental excitement, restlessness.

Other indications will be met by such remedies as *cypripedin*, *bryonia*, *colocynthin*, *scutellarin*, *lobelia*, *phosphorus*, *chamomile*.

Where this form of headache proceeds from over-lactation, *cinchona*, phosphorus and iron are indicated.

Where it depends on hysterical conditions, and the pain confined to a single spot, where the patient describes it as driving a nail into the side of the head, belladonna, in alternation with coffee, will act promptly.

## APOPLEXY.

We understand by the term apoplexy, sudden insensibility, the loss of sensation, thought and voluntary motion, with more or less severe disturbance of the functions of respiration and circulation. It is a state of coma, occurring suddenly from pressure upon the brain; the compressing power having its seat within the brain.

The state of coma, in apoplexy, may terminate in three ways.

It may gradually pass off, leaving the patient well.

It may terminate in incomplete recovery; the mind being impaired, and some parts of the body paralyzed.

It may terminate in death. If we examine the brain, we may find no trace of disease or extravasated blood, or even effusion of serum into the ventricles, or beneath the arachnoid.

That which is fatal, without leaving traces, is *simple apoplexy*; the second, sanguineous apoplexy, or cerebral hemorrhage; the third, serous apoplexy.

The following are the characteristic predispositions to apoplexy: hereditary tendency, peculiar habit of body, sedentary habits, high living, protuberant bellies, large heads, short, thick necks, disease of the kidneys, heart or cerebral blood-vessels, intemperance, cessation of habitual discharges. The threatening symptoms are headache, giddiness on stooping, weight and fullness in the head, noises in the ears, transient impairment of sight and hearing, or double vision, occasionally epistaxis, numbness, loss of memory, mental depression, incoherent

talking, drowsiness, with indistinctness of articulation, and partial paralysis.

Generally speaking, an apoplectic attack commences in *three* different ways.

1. The patient may fall down suddenly, deprived of sense and motion, and lies like a patient in a profound sleep; face flushed, breathing stertorous, pulse full but not frequent. In some cases convulsions occur; in others, rigidity, spasm, contraction of the muscles of the limb.

2. In this form, the coma is not the first symptom, but rather a sudden attack of pain in the head; the patient becomes pale, sick and faint; sometimes he vomits; more frequently falls into a state of syncope. But he may not fall down, the attack of pain in the head may be merely accompanied by a slight and transient loss of consciousness. After a few hours, the headache continuing, he becomes heavy, oppressed and forgetful, and gradually sinks into coma, from which he rarely recovers.

3. In this form of apoplexy, the attack begins with a sudden seizure of paralysis of one side of the body, with no loss of consciousness. The paralysis passes gradually into apoplexy, or goes off slowly, and the patient recovers.

An apoplectic fit varies in duration from a few hours to as many days. Usually unconsciousness.

*Pulse*, generally small at first, becomes full and strong as the system recovers from the shock or collapse; as a general rule, it is slower than natural, frequently intermitting.

*Respiration* is slow and embarrassed, or else performed with preternatural frequency and force—there may be stertor; frothy saliva from the mouth.

*Skin*, cold and clammy; *face* pale, and the *eyes* dull, glassy, with dilatation of the pupils; *teeth* clenched; the power of deglutition lost or impeded; bowels torpid; or, if relaxed, the motions are involuntary—involuntary micturition, or retention of urine, and the patient recovers with more or less paralysis of the limbs.

*Post-mortem*.—Appearances of persons who have died of apoplexy are varied by the extent and locality of the lesion found in the brain. The blood may be found upon or between the membranes of the brain, into one of the ventricles, or into the cerebral substance itself.

The effects of sanguineous effusion into the medulla oblongata, is more suddenly fatal than any other part; effusion on the surface of the medulla oblongata is more common, and equally fatal, as it is from this part that all the nerves of respiration, and the muscles they command, receive their power of action. Blood effused into the third ventricle from rupture of vessels of the thalami, or corpora striata, is speedily fatal.

Effusion into the pons varolii produces paralysis of one or both limbs according to its extent.

Effusion into the crus cerebri produces paralysis of the extremities on the opposite side of the body; so is effusion into the corpus striatum invariably followed by paralysis; but in many cases of



extreme apoplexy, the symptoms do not indicate the precise part affected. If death occur a few hours after an attack, after effusion of blood into the membranes of the brain, the cerebral substance may be merely flattened from pressure, which the extravasated blood has exerted; but if some days elapse, there will probably be evidence of meningitis, as well as of softening. If the blood has been poured out into the substance of the brain, a cavity, containing semi-coagulated blood and softened cerebral matter, will be found. But if seen at a later period, the clot may be firm, and the walls of the cavity may have undergone some amount of inflammatory softening; and if the patient has lived a month or six weeks, we may have the clot encysted. But the rupture of the vessel cannot always be made out.

The connection between the extravasation in one side of the brain, and hemiplegia of the opposite side of the body, has been clearly demonstrated.

*Treatment.*—This may be divided into prophylactic, and that which is required during an attack.

When a predisposition exists or is suspected, all possible precautions should be taken to prevent an attack. The patient should avoid all bodily exertion, venereal excitement, violent mental emotion, straining, stooping, tight neck-ties. Every symptom of disorder of the digestive organs should be attended to, and the general health promoted by exercise in the open air, with simple but nutritious diet.

All bronchial affections should be relieved; congestion of the lungs should also be removed by proper means, and the greatest attention paid to the bowels. Sleep should be restricted, warm baths avoided.

Washing the head daily with cold water is very useful; the shower-bath, &c.; also the application every night, at bed-time, of the mustard roller from the extremity to the knee. If giddiness, headache, throbbing of the arteries of the head and epistaxis are present, much benefit will accrue from free purgation and active counter-irritation.

For the precursory symptoms, and for its incipient stages, the following remedies will be found useful: *aconite*, *nux vomica*, *lobelia*, *phosphorus*, *acetate potash*. But, supposing the attack has occurred, what treatment are we to pursue?

If the tendency be towards death by coma; if the pulse be full or hard; if the vessels of the neck are engorged; if the face is flushed and turgid, belladonna is the only remedy that will act promptly.

*Belladonna* also if the pupils are dilated, conjunctiva injected, grinding of the teeth. This remedy is the best in every form of apoplexy, best as a preventive.

*Aconite* has also met the indications remarkably. It is peculiarly appropriate in patients of a sanguine temperament, with nervous symptoms prevailing.

*Phosphorus* is a valuable remedy—and where we have extreme debility, prostration; torpor of the mental faculties; coldness; paralytic weakness; tremor of the hands—it is indicated.

*Coffee*, *ignatia* and *nux vomica*, may be given, for the purpose of removing the premonitory symptoms of adynamic apoplexy.

*Hyosciamin* is suitable where there is great nervousness, illusion, convulsive jerks, face livid, features distorted.

*Veratrum* is excellent where there is great turgidity, vertigo, frequent paroxysms.

*Arnica* is indicated in serous apoplexy in patients of a sanguineous temperament, face red, plethora.

*Iodide potass* is appropriate in almost every case.

*Rhus radicans* and *rhus tox* are of great utility, where there is great prostration, tingling, twitching in the limbs.

*Hydrocyanic acid*, if there is lock-jaw, frothing at the mouth, convulsions, insensibility.

*Lobelia* is the remedy in that form arising from an overloaded condition of the stomach.

In the general management of the patient, have him removed to a cool well-ventilated room; elevate the head and shoulders, loosen all the articles of dress; apply cold to the head, pounded ice in a bladder; apply cups to the back of the neck, and then resort to free, active purgation, by jalapin, colocynthin and podophyllin. If the patient cannot swallow, three or four drops of croton oil, mixed in a teaspoonful of glycerine, might be put gradually on the tongue, and enemas of a solution of colocynthin thrown up the rectum. Some are partial to emetics, but they can do no good unless the stomach is overloaded; they should be avoided, as they give the blood a determination to the brain. The greatest care should be exercised, and if the patient recover, all the prophylactic measures should be strictly enforced. Strong medicines, great excitement, much mental occupation should be avoided.

The diet should be light, but nutritious, and such remedies as phosphorus and belladonna should be perseveringly given.

## INSANITY.

It is the brain and nervous tissue which constitutes the primary constituent of the human body. It is the superiority of brain, in structure, conformation, and constituency, which creates the distinctive feature of race and individuals. A knowledge of this wondrous structure enables us to explain the inconsistencies and contradictions of human character and action.

Under the general term of *insanity*, it is customary to speak of all or any of the usual perturbations of the intellect. It is a general term used to express a mental condition opposed to sanity; or it may be thus defined: "insanity is a disease of one or more faculties of the mind, of the diseased manifestation of which the individual is unconscious, or not able to control;" but the line of demarcation between sanity and insanity is often hard to define.

Mental alienation, includes all cases where the mind is incoherent, or deficient; where it has lost or perverted its accustomed powers. The indications of impending cerebral mischief is usually easily observed, and its premonitory symptoms are: headache, giddiness, mental confusion, paroxysms of irritability, and loss of temper, unfitness for usual occupation, a weariness of life, sleeplessness, lethargy,

loss of memory, defective articulation, dimness of sight, and flightiness of manner. He shuns society, he is tortured with blasphemous or obscene thoughts, has frightful dreams, and suffers from dyspepsia.

A stage onward, we have insanity appearing in various aspects, according to the causes which originated it. Some are gay, happy, and imagine themselves superior beings, and assume the importance of their supposed situation; some are delighted with toys; some are revengeful and furious: others are silent—all drag out a miserable existence. Some consider themselves utterly miserable, and resort to various efforts to drive away their anguish of mind; they laugh, scream, cry, and are fond of narcotics; some are silent and gloomy. Mental diseases are frequently accompanied with symptoms of bodily disorder. There are two morbid affections, which specially demand our attention. Those which are complicated with general paralysis and epilepsy are the most terrible.

INSANITY, WITH GENERAL PARALYSIS, is invariably incurable, and it is a remarkable fact that paralytic lunatics seldom live more than two or three years. Whenever the paralysis supervenes, its commencement is ushered in with striking symptoms of imbecility; and it progressively increases as the mental power diminishes, as indicated by the imperfect articulation; tottering, uncertain, vacillating movements; impairment or loss of power in all the parts supplied with nerves, radiating from the affected portions of the brain, as indicated by the vacant look; feeble and frequent pulse; partial or complete paralysis of the tongue; paralysis of the optic nerve; the excretions escape involuntary, from paralysis of the sphincter muscles. Hemiplegic seizures, attended with convulsions and coma, are not uncommon. As the disease advances, the patient becomes extremely helpless, all trace of intelligence is lost, they become torpid and sometimes motionless, scarcely a symptom of life, but a grinding of the teeth.

This condition evidently depends upon softening of the base of the brain.

All that can be done in the way of treatment is, to relieve or palliate symptoms, to give sleep by large doses of henbane, beginning with ten grain doses, and cautiously increase, and to support the strength with a nutritive diet; at the same time keeping up warmth and cleanliness.

INSANITY WITH EPILEPSY.—In these cases there is neither the softening nor atrophy of the brain that are common in other forms. It may be due, in some cases, to spicula of bone projecting from the cranium or a tumor.

The mental aberrations of the epileptical insane are characterized by the utmost ferociousness, and if the cause does not admit of removal, it subsides into incurable dementia.

VARIETIES OF INSANITY.—A great deal of discussion and diversity of opinion have existed as to the best classification of cerebral disease. The best division of insanity is into *mania*, *monomania*, *dementia* and *idiocy*. It is well, however, to bear in mind that these distinctions are but imperfectly delineated, and that very frequently the one merges imperceptibly into the other.

## MANIA.

This consists of an entire perversion and derangement of the intellectual faculties. The patient reasons, draws inferences, and forms opinions without any regard to common sense. The intellect is deranged on all subjects; if not lost, is disturbed and confused; the ideas are abundant, erroneous, absurd, wandering—not under control. The manners are violent, excited, and extremely mischievous. At the same time, the patient is perfectly conscious of his identity—has vague ideas of right and wrong, but the mind operates through a diseased organ, the healthy equilibrium is lost, and the individual is impelled to obey the dictates of his diseased imaginings.

Mania is seldom accompanied with febrile disturbance, unless it be at the commencement, but there is usually an excitation or great exaltation of the mental and muscular powers. Maniacs are often capable of enduring severe bodily exertion, also intense cold, extreme and protracted hunger and thirst.

Mania is insidious usually in its attack; but, from its commencement, the delirium is general, and the fury extreme. Generally, however, maniacs become weak and emaciated, and their affection degenerates into dementia. Complete exhaustion of the physical and mental forces, from constantly and rapidly moving about, also from shouting, howling, laughing, reciting, as well as the irreparable organic change in the substance of the brain, is not uncommon. Combine all these with a want of sleep, an aversion to food, and we have causes to exhaust a strong man. Where recovery takes place it is invariably preceded by sleep, a desire for food, and a gradual cessation of agitation and delirium. The most common forms of disease to which maniacs finally yield are—exhaustion, physically and mentally, cerebral fever, apoplexy, inflammation of the meninges, consumption, ulceration of the intestines.

PUERPERAL MANIA is a peculiar affection, occurring in women after delivery. It begins with restlessness, insomnia, severe pain in the head, either a diminution or arrest of secretion of milk, suppression of the lochial discharge; indeed, secretion as well as excretion is entirely suspended. There is fever; hot, dry skin; full, quick pulse; thickly furred tongue. In nearly all cases there is profound debility, usually occurring in patients who have suffered from, and been prostrated by excessive hemorrhage, prior to or during labor; or been depressed by some poison, as malaria, erysipelas, &c. The delirium is often violent; the mania is terribly outrageous.

If such a complication should occur in a puerperal patient, give at once a lobelia emetic; this often restores the clouded intellect, produces a change of scene; follow this with a subcutaneous injection of morphia, then an alcoholic vapor bath; apply on each limb a roller, saturated with mustard, from the extremity to the knee; then put the patient upon small doses of brandy and milk every two hours, and, for the purpose of allaying the cerebral excitement, combine macrotin, hyosciamin and quinine, ãã gr. i; give every two hours. Then the secretions must be efficiently but not drastically acted on by podo-



phyllin and colocynthin. The patient must be perfectly controlled, and treated altogether as the indications may demand.

### MONOMANIA.

Monomania, or partial insanity, is that form in which the understanding is partially deranged, or is under the influence of some one particular delusion—some special subject which constantly occupies the thoughts, to the almost entire exclusion of everything else. The mind is vigorous; the ideas are few, erroneous, fixed, not under control. The manners are in strict conformity with the ideas. Monomania may be cheerful or sad; but, in the large proportion of cases, the patient dwells upon a painful train of ideas. Sometimes a prey to the most absurd fears and dreads, as poverty, murder, suicide, of having committed the unpardonable sin, or of some serious calamity. He may imagine himself a clock, or an animal, or the enemy of all men; or, it may be, some great and eminent man.

Almost every insane person labors under hallucination of one or more of the senses; he sees and converses with imaginary beings. When he is satisfied that what he sees or hears is only an *illusion*, he labors under a hallucination; whereas, when he believes in his false perceptions, the hallucination becomes a *delusion*.

MONOMANIA may exist, in a light form, for a long period without attracting much attention, and the symptoms may be very obscure; but the conduct of the patient, the expression of his countenance and demeanor, suggest mental delusions; yet he may manifest nothing in his conversation. That form of the affection which, characterized by fear, moroseness, prolonged sadness, is described by some authors as melancholia. The despondency is often great. They are generally unwilling to talk, move or take food; and he will often remain a whole day without change of position or uttering a word. He sleeps little; dreads solitude; often tortures himself by the anticipation of future punishment; at other times he may be bent on committing suicide.

The attempt to commit destruction is not a sudden impulse, but rather a long premeditated determination; and if they find they are watched, their instinctive cunning is so great and strong, that they will assume a cheerful manner for days and weeks, so as to quell suspicion, and then avail themselves of the first opportunity that offers.

MORAL INSANITY is another variety, in which there is perversion of the feelings, affections, temper, habits, moral dispositions, without any remarkable disorder of the intellect. Eccentricity of conduct, violent impulses, a propensity to every species of mischief, are the characteristic features.

This malady, like mania, may be continued, remittent or intermittent. The cure is generally preceded by some crisis, either physical or moral. The physical crisis are, eruptions, sweats, vomitings, diarrhoeas, tumors, fevers, inflammation of brain. The moral crisis consists of all those emotions or passions, which, by violently acting on the brain, are capable of exciting a new action, which will supersede the morbid condition. Under this head ranks passion, grief, &c.

## DEMENTIA.

The prominent features of dementia, or incoherence, or weakness of the intellect, induced by disease, accident or age. The mind is weak, feeble; ideas confused, obscure, vague, incoherent, unfixed; memory impaired. Patients are ignorant of time, place, quantity, property. Their manners are undecided, childish, silly, forgetful; their conversation is incoherent; they have neither partialities nor aversions, neither hatred nor love. The tendency of mania and monomania is, to pass into dementia. It is rarely cured, but passes into complete paralysis. Cerebral atrophy is a constant concomitant of dementia, its extent varying with the loss of mental power.

IDIOCY is characterized by partial or complete loss of intellect, either congenital or occurring early in life. The mind is not developed—there are no ideas, or at most few. Their manners are childish, with occasional transient gusts of passion. The countenance is vacant, articulation imperfect, gait unsteadied.

In real insanity, we often see displays of great intellectual efforts, exhibited in many different aspects. In some cases we have prominent physical symptoms, as a peculiar fetid smell; eyes frequently dark; hair dry; complexion swarthy; secretion of the nose diminished.

*Pathology.*—The pathology of insanity is not plain. It is a disease that is undoubtedly associated with disease of the body. The extent of physical derangement is different in different cases; hence, the variety of mental manifestation.

The gradual development of mind from infancy to manhood, and then its diminution in power as old age approaches, is in exact proportion to the development of brain.

Insanity is a hereditary disease, just the same as other peculiar organizations descend from parents.

Insanity occurs at all periods of life, but most liable to appear when the mind is at its highest activity; when the organism is most perfectly developed, and in the highest state of activity.

Early dyspepsia, hard study, excessive mental labor, may produce it. Females, during menstruation, pregnancy, and, after delivery, often become insane under the influence of peculiar and powerful actions going on in the system. Atmospheric influences also operate unfavorably.

All physiologists agree that the gray matter of the cerebral convolutions is the point at which mind touches matter; where impressions become sensations, and the will develops itself into action, and in whose generated force alone the intellect finds its means of operation. With the gray matter of this centre, no nerve is directly connected; but multitudes of white fibres pass from its cells to unite with the motor and sensory centres, the ganglia at the base of the brain.

Morbid affections of the gray substance of the cerebral hemispheres alone, manifest themselves in various derangements of intellect. They are prone to arise from either deficiency or superabundance of blood supplied to them, or from vitiation of its quality, as in fevers and blood-poisoning.

Induration of the brain, from long-continued sub-acute inflammation, is a frequent cause of insanity; but many cases occur in which no organic lesions have been found after death.

The brain, like muscles, is more fully supplied with blood when in a state of activity than when at rest.

Atrophy of the brain may be a cause. The average weight of an adult brain is about fifty ounces; some are larger, as *Cuvier's*, *Chalmer's*, &c., which weighed about sixty ounces. Adult idiots average about twenty ounces. With a decrease in volume, we have a diminution of intelligence.

*Causes.*—It is sometimes difficult to detect the cause. No doubt can be entertained but what it is hereditary; it can also be traced to marriages among relations or like temperaments; sometimes due to syphilis or drunkenness in the parents. The more immediate causes may be injuries on the head, abuse of intoxicating drinks and other narcotics, as tobacco, opium, sexual excesses, masturbation, fevers, the retrocession of erysipelas, gout, in persons who have the hereditary disposition. Then the moral causes are, blighted ambition, disappointment in love, perverted religion, grief, anxiety, distress, intellectual exertion, pecuniary reverses.

Defective nutrition of the brain, from morbid blood or obstruction to the capillary circulation.

Want of refreshing sleep interrupts the nutrition of the brain most disastrously. Sleep is essential to the nutritive regeneration and perfect health of the cerebral organism.

Civilization, which has done so much for our race, is a grand source of insanity. Civilization, which has produced such gigantic results in ameliorating and ennobling man, has done it at an immense expense of mental effort. The restless, enterprising American, in his march toward the empire of the world, finds many obstacles in his path which never troubles the lethargic brain of less intellectual races.

The struggle for wealth, fame, position in civilized society, demands an intensity of effort which none but the strongest and soundest minds can stand. The excessive length of hours of labor of our artisans, clerks, &c., exhaust the powers of life in over-action of the brain. In every department of business and labor there is an intensity of mental effort far beyond legitimate bounds.

The tendency of our literature is to cultivate a morbid activity of the imagination, which is highly injurious to physical and mental health; more so than over-action of the reflective faculties. The effort to work the brain more and the body less, is a general cause of insanity. Exercise of the brain upon tangible, attainable objects in natural philosophy, law, jurisprudence, &c., has never caused insanity.

The neglect of physical training in the young,—the consequent neglect of physical development on this account, are strikingly illustrated among the young.

There is a remarkable increase of insanity among women of late years, which can only be accounted for by the excessive demands which advanced civilization has made upon their energies.

*Diagnosis and Prognosis.*—In the examination of an insane pa-

tient, we find that many of his actions are not more extravagant than those of many eccentric or peculiar individuals; but examining him more closely, we perceive that his conduct is totally at variance with that which he manifested prior to the attack. The individual is not what he was; there has been a change of demeanor, perceptible to all about him. There may be some difficulty in finding out his delusions, and on this point it is well to be careful, but a well and careful examination will usually make the diagnosis certain.

If it is due to an acute disorder, or some cerebral malady attended with fever, if that is the beginning of the affection, and it is not of long standing, our prognosis will be favorable.

If it is due to physical violence, sustained by the head, our prognosis will be uncertain.

If the mind has broke down under severe calamity, the prospects of recovery are great; but if complicated with paralysis, or epilepsy, the case is hopeless. More cases of mania are cured than any other disease; if the mental disease is connected with some bodily disorder, which admits of removal by the progress of age, or by medical treatment, our prognosis is more favorable.

In advanced insanity, the patient is happy in his delusion; he gets fleshy; his appetite is good, and morbid ideas give him no trouble. It is a very unfavorable symptom when the bodily health improves without the mental faculties becoming alleviated.

*General Treatment.*—In conditions of disease, the vital powers of the living body are changed, so that medicines do not produce the same effect that they do in health. In disease of the brain, secretion is partially suspended, and immense doses of medicines have little power; because absorption is almost suspended, and the nervous system strongly depressed, where secretion is over-excited, the absorbent surfaces lose their properties. The salivary glands, in a state of health, rapidly absorb; when secretion is rapid, absorption is slow. In cholera, no substance whatever is absorbed. In mania, absorption is suspended.

It is well to bear these ideas in mind.

If the patient is seen early, when symptoms are threatening, we can do a good deal in the way of cure, by seeing that the patient has an abundance of sleep; a proper action of the skin, liver, kidneys, alimentary canal. If there are no symptoms of active cerebral disease, hyoscinum proves invaluable; Indian hemp, lupulin, may also be useful. If the vital powers are depressed, tonics—as phosphorus, quinine and iron, must be given. Diet should be nourishing; exercise, cheerful society and associations, change of scene. We must not correct, but maintain a high standard of health; we must also remove any disorder that exists in any other part of the system, as skin diseases, which may be complicated with the cerebral affection. In ordinary cases, see to the most perfect hygiene, nutritious diet, warm clothing, exercise in the open air, every secretion in a normal state, and, above all, sleep at night. Obtain a quiet condition of the nervous system, strengthen the intellect, and all is gained. While con-



ducting this plan of general treatment, avoiding restraint, providing cheerful occupation, mental amusement, pleasing exercise, suitable to the peculiarities of each case.

As regards the moral treatment of insanity, no rules can be laid down. It should be regulated by kindness, a feeling of sympathy, and no harshness or cruelty, or anything that can *induce* fear, should be tolerated.

The confidence of the patient should be obtained by both nurse and physician, and goodness of heart and firmness of purpose should reign supreme.

In the medical treatment, we must be specially guarded in our remedies, so as to meet the exigencies of the case thoroughly.

The remedies which have been most successful in the cure of insanity, are, *opium, belladonna, nux vomica, phosphorus, hyosciamus, stramonium, conium, gold, platinum, aconite, veratrum*.

*Aconite* is indicated in all febrile conditions; in nervous hypochondria, arising from derangement of the stomach and liver.

*Opium* is most suitable in dementia, with stupor; loss of mind, indifference to pleasure and pain.

*Nux vomica* is generally an excellent remedy when insanity has followed excess of any kind, and where the patient suffers from great anguish.

*Hyoscin* acts best where the mania comes in paroxysms, where the patient is sleepless, delirious, raving, furious.

*Belladonna*, where there is congestion about the head; eyes brilliant, pupils dilated, head hot, spasms, constant desire to change position. The pathological indication of belladonna is congestion of the vessels of the brain.

*Muriate of gold and platinum* are remedies which demand our most attentive and highest consideration in insanity in all its varied forms—no other medicines can compare with them in therapeutic power.

*Phosphorus* must never be overlooked, but it would be impossible to glance at the numerous remedies used in this affection.

*Baths* are important—the douche bath daily. In some cases benefit will be derived from a sedative bath, composed of henbane, hemlock, cherry, laurel leaves, āā 2 lbs. A warm bath of this, immersing the patient in it for half an hour, at the same time applying cold water to the head.

More certainly can be done medically than is attempted by most physicians, and cures would often be the result if a perseverance in treatment were rigidly pursued. I could record numerous cases of cerebral disease, exhibiting all the features of ramollissement, yielding to the preparations of iron, phosphorus, gold, cinchona, combined with generous living, and the occasional use of dry cups to the nape of the neck, and every night use of the mustard bandage on the limbs. Incalculable benefit may be derived from the muriate of gold, altered with cinchona. In cases of impairment of mind, loss of memory, defective power of attention, paroxysm of paralysis, phosphorus, nux vomica and iron will often succeed. If it is supposed to result from

thickening, shaving the scalp, and applying an ointment, composed as follows:

R $\bar{y}$ .—Iodide potassium,  $\mathfrak{z}$ iv;  
 Strychnine, gr. ii;  
 Unguentum stramonium,  $\mathfrak{z}$ i.—*Mix.*

Twice daily; at the same giving either the muriate of gold or platinum, stimulating the secretions. This, conjoined with tonics, enables us to push treatment with considerable benefit, and, if we do not cure, improvement is certain.

Each case must be treated according to the indications, and, before concluding, we would briefly allude to the importance, as a principle of all treatment, that it should consist essentially of tonics, active exercise in the open air, good and generous living.

### DISEASE OF THE SPINAL CORD.

Experiment and clinical observation have taught us that the spinal cord, in connection with the brain, is the instrument of sensation and voluntary motion to the trunk and extremities. The continuity of the cord with the encephalon is absolutely essential; while its intimate connection with every part of the organism, through nerves arising from, or communicating directly with it, renders any derangement to its delicate structure almost certain to originate a serious train of morbid symptoms; and let the connection between the cord and brain be destroyed, and then sensation and voluntary motion will be abolished in all those parts of the body supplied by spinal nerves below the seat of the injury. The nearer the seat of interruption to the brain, the greater will be the paralysis, and the more rapidly will life be destroyed; so that, if the cord be severed at its junction with the medulla oblongata, death will be instant.

The nerves which issue from the cord have each two roots—an *anterior*, purely *motor*, and a *posterior*, purely *sensitive*—making a compound nerve. If we make a section of the cord, we find it consists of *gray* and *white* matter. The *gray* matter is in the interior of the cord, in the shape of two crescentic masses, each mass being in a lateral half of the cord, each having an anterior and posterior horn, and each being joined to the other by a band of matter called the *gray commissure*. The anterior roots of the spinal nerves have their origin from the *gray ganglionic* cluster of cells of the anterior horn; the anterior medullary fibres of the cord being the channels through which the influence of the will is conveyed from the brain to those ganglionic clusters of plexuses. The posterior roots have two small roots; *one* ascends in the white substance to the brain, forming the medium of sensation; while the *other* penetrates the white substance, and seems to be lost in the ganglionic cells of the posterior horn and centre of the gray matter. These latter rootlets of the great posterior or sensitive roots are thought to constitute the reflex nerves. Thus, the two horns of gray matter appear to stand in the closest relation to motion; the anterior being the direct source of motion, while the posterior serve

for reflex action and co-ordination. The medulla oblongata is the grand central point where reflex action crosses to either side, and on the irritated state of which general spasms, convulsions, and epilepsy depend.

### SPINAL MENINGITIS.

Acute inflammation of the membranes of the cord may terminate in *resolution*, or in effusion of *serum*, or in *suppuration*. The morbid action, when acute, may be associated with disease of the cerebellum, or of the cerebral membranes; while chronic, it is mostly associated with caries of the vertebra.

The *symptoms* of inflammation of the meninges of the cord, are—acute pain, often of a burning character, extending along the spine, stretching into the limbs, aggravated by motion or pressure, resembling rheumatism; rigidity, or tetanic contraction of the muscles of the neck and back, amounting to opisthotonos; paralysis of the lower extremities, which gradually extends upwards as the effused serum increases in quantity; a feeling of constriction in the neck, back and abdomen; suffocating sensations; retention of urine; obstinate constipation.

Males are more prone to the disease than females.

*Causes*—Exposure to wet or cold, where the rheumatic diathesis remains latent in the system, mechanical injuries, &c.

*Post-mortem* appearances are—great congestion, effusion of serum or pus, or, perhaps, softening of the cord.

### CONCUSSION OF THE SPINAL CORD.

The spinal cord is as liable as the brain to derangements of nutrition, as well as concussion or compression, while its intimate connection with every part of the organism, through nerves arising from, or communicating directly with it, renders any derangement to its delicate structure almost certain to originate a serious train of morbid symptoms.

After a blow or fall, then a sensation of pins and needles in the hands and feet, soreness, stiffness, painful to move the limbs. Now, these symptoms are peculiar, not the result of a bruise or blow, but some structural disturbance of the motor, as well as of the sensitive nerves; the precise nature of the mischief is not always ascertainable.

The great point in treatment is perfect rest, counter-irritation the whole length of the spine.

### CONGESTION OF THE SPINAL CORD.

This gives rise to symptoms similar to concussion. The best mode of treatment consists in rest, counter-irritation the whole length of the spine; the exhibition of those specific remedies, ergot and belladonna.

The effect of these remedies is a diminution of the calibre of blood-vessels, of the pia mater of the spinal cord; so that in cases of para-

plegia, due to congestion or chronic inflammation of the spinal cord, they have great power in diminishing the amount of blood in the cord and its membranes.

### SPINAL HEMORRHAGE.

Apoplexy of the cord, or paralysis from the effusion of blood into the substance of the cord, is much more rare than cerebral hemorrhage.

The causes are, chiefly, blows, falls, over-exertion, acute inflammation of the cord and its membranes, fatty degeneration of the coats of the blood-vessels, caries, and disease of the vertebræ. The blood may be poured out external to the dura mater, or between the membranes, or into the gray portion of the cord. If the effusion is abundant, death may at once ensue; but when this does not happen, a fatal result may take place, after the lapse of some time, from softening.

The symptoms will depend upon the seat of the ruptured vessel.

Effusion into the substance of the cord produces sudden paralysis in all parts supplied with nerves, below its seat, unless the hemorrhage is very slight, when the loss of power may be gradual. If the blood is effused between the membranes, it will gravitate to the lowest portion of the canal; and hence will arise paralysis, which gradually ascends. There will also be acute and sudden pain in the back, head; convulsions may set it; difficult respiration; and if there is pressure on the upper part of the cord, we may have collapse of the lung, depressed action of the heart, skin pale and cold, no loss of consciousness. In the treatment, an effort must be made to check the effusion of blood by perfect rest, by the application of cold along the spine, by the use of arterial sedatives, and such remedies as belladonna, ergot, &c., &c.

### LATERAL CURVATURE.

The spinal column, with its twenty-four vertebræ, piled one on the other, with the intervening cartilages, held strongly, but not immovably together by various ligaments, the whole forming a flexible column, with little power to sustain itself in an upright position without the aid of muscles. The spinal column, so beautifully adapted to allow flexion in any direction, to secure the movement of the body, and giving pliability and elasticity, with firmness and strength, as in perfect health. For the exercise of the normal function of this structure, it is essential that the muscles act in harmony, or a want of equilibrium will be the result. Besides lateral curvature, depending on a want of muscular unison, it may also depend on destruction of portions of the column itself. The form of lateral curvature, which is so excessively common, is that from debility of the muscles, ligaments or bones.

*Symptoms.*—If the action of every muscle is not perfectly antagonized; if one acts with more force than the other, then harmony and co-ordination are lost, and the spine makes a quarter flexion toward the point where muscular action is strongest; this unequal muscular action causes the spine to deviate to the right or left,—to or from the stronger muscles. As a result, the most observable symptom is an



elevation or projection of one shoulder. If the case is examined, the spine is found to be curved. One shoulder, and one side of the chest, are unnaturally high and rounded.

*Causes.*—These affections are commonly caused by positions or occupations that tax one side of the body more than the other; all one-sided posture; the weight of the body falling unequally on the spine from day to day, will impair its elasticity, and if the muscles and ligaments are weak, the bones soft, as in the young and in those deprived of fresh air, wholesome food, and active exercise, this lateral distortion may become permanent. Curvature of the spine is usually met with in the young, being generally the result of an enfeebled vitality, either congenital or induced by want or privation.

*Prognosis.*—In lateral curvature, a favorable prognosis may be given; in posterior curvature, the best result that can be attained is to stop the disease; in destruction of the vertebra, the best result is ankylosis.

*Treatment.*—If there is simply a want of equilibrium, a simple loss of muscular power, we would enjoin perfect rest on a hair mattress, for a certain number of hours daily; exercise in the open air, friction, shampooing of the spine with salt-water, or stimulating liniments and electricity should be resorted to. Mechanical support should be used, (*Fig. 47.*) but it should be such as would permit free movements.

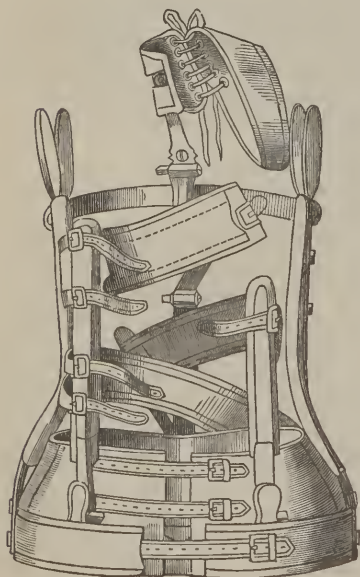


Fig. 47.

*Rest* is the most important item in treatment; *rest* on the back in a recumbent position. It is well to be judicious in such cases. If there is any irritation or pain along the spine, or tenderness, counter-irritation should be resorted to.

Particular attention also should be paid to position; all one-sided positions should be vigilantly prohibited. Exercise should never be carried to fatigue.

These measures should be combined with tonics, especially iron, cinchona, phosphorus, hydrastin, a nutritious diet, the sponge or shower bath should be daily used; or the salt-water or mineral acid baths should be perseveringly used.

CURVATURE FROM RICKETS AND SCROFULA, is merely another form of curvature from debility. It attacks a certain class of patients, and is readily distinguished by the

aspect of the patient, and by the distortion as well as by the circumstance that the spine is not laterally curved, simply, but often curved directly backward or forward.

In these cases, improve the general health by every means, country

air, sea-side residence, tonics, iron, cinchona, phosphates; strengthen the muscles of the back by electricity, shampooing, and put the patient upon the treatment recommended for scrofula.

In rickets, mechanical support, (*Fig. 48,*) the recumbent position, and, in severe cases, the patient should never be allowed to sit or stand upright, but, when up, he should walk out, and, when walking, some form of mechanical support is advantageous, and, when not walking, should lie down. *Rest is all important.*

A very excellent mode of obtaining perfect rest is by a common camp bed, with the head elevated about a foot and covered with a soft hair mattress, two straps of india rubber webbing attached to the arm pits and fastened to the head of the bed, counter-extension to the limbs. In this way constant gentle extension is made, the patient lying on his back, the body free. This mode of extension can be carried to almost an indefinite extent.

Bathing the whole length of the spine with salt and water, or a stimulating liniment, or a strengthening plaster might be applied, and a general alterative and tonic course pursued.

ANGULAR CURVATURE is generally produced by caries of the bones of the vertebræ, or ulceration of the inter-vertebral substance; it is almost always dependent on struma. It is very prone, if neglected, for the curvature to become so excessive as to exhibit symptoms of pressure, or irritation of the spinal cord; the patient complaining of weakness, coldness, numbness of the limbs, incapability of taking exertion, and these symptoms are followed by twitchings, spasms of the limbs and palsy. From this loss of power, we may have retention of urine, and fæces from paralysis of bladder and rectum. The symptoms vary according to the part of the spine affected. If it occur at the lumbar regions, all the parts which derive their nervous power from that source will be more or less implicated; if the *dorsal vertebræ*, tightness of the chest, difficulty of breathing; and if in the cervical portion, the arms may be paralysed, and there may be difficulty in supporting the head.

In an advanced stage, the spinous processes of the diseased vertebræ project backwards and cause great deformity. Abscesses form, there is great constitutional derangement and hectic.

The most favorable termination is ankylosis. This usually occurs after ulceration of the inter-vertebral cartilage. Some cases terminate

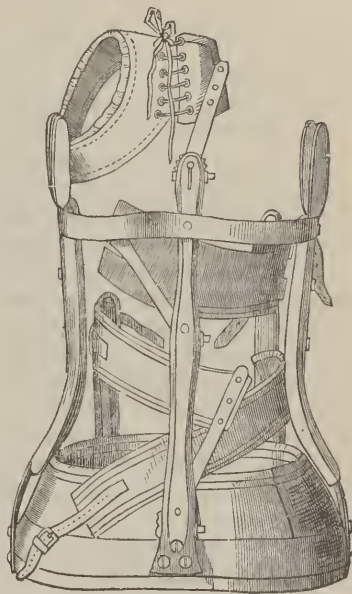


Fig.. 48

abruptly by the diseased vertebræ giving way and crushing the spinal cord, or from dislocation owing to ulceration, but more frequently the termination is by slow irritation and exhaustion, consequent on the formation and bursting of abscess.

*Diagnosis.*—It is easily distinguished from lateral curvature, by observing that the curvature is abrupt and angular, whereas, in curvature from debility, it is gradual, rounded, implicates the whole spine. Besides the tenderness and pain, also the symptoms of irritation to the spinal cord.

Any attempt to remove the curvature would be injudicious. Anchylosis is the only favorable result, so that it is proper to place the patient in the most favorable position; to attain that desired end, the recumbent position to remove from the diseased parts all superabundance of weight—the horizontal position, and with it all, the removal of weight from the diseased part, diminishes the danger of irritation, the formation of abscess, paralysis, &c., which always induce unfavorable apprehensions in our minds. The application of splints the whole length of the spine, exactly fitting the shape of the part, are also of importance. This course should be pursued from the earliest indications of disease, until a cure is effected by anchylosis. Any apparatus that will tend to remove the superincumbent weight, and give perfect repose, should have preference in treatment.

The maintenance of the general health is of the greatest moment, but it happens, unfortunately, that the best means we have of fulfilling it, are incompatible with those essential points in good treatment, perfect rest, in the recumbent position.

In the strumous, besides the appropriate remedial measures, look well to the clothing, food, or any causes, acting permanently or habitually, which have an influence in exciting caseous deposits in bone or other textures. Hence the necessity of a generous, digestible diet, pure air, exposure to the light of the sun. Improve by every means nutrition of bone by the use of articles of diet, containing a good quantity of phosphate of lime. Beef, phosphoric acid, soluble salts of lime; as to tonics, iron and cinchona are the most useful; bitter tonics to improve the digestive function. The steady, cautious use of counter-irritation is of the utmost benefit. The whole surface should be daily bathed with salt and water.

### LUMBAR AND PSOAS ABSCESS.

These are very apt to arise from that condition of the spine we have just described. If we consider well the anatomical condition of the muscles, fascia, the variety of courses these abscesses take, are very intelligible. We find them occasionally pointing in the back, sometimes in the abdomen, sometimes below Poupart's ligament, forming a tumor, which disappears when the patient lies down and receives an impulse on coughing.

*Treatment.*—Be sure that it is a psoas abscess, and then puncture it as soon as fluctuation is detected, or if this is not adapted to the case, use local anæsthesia, and open with caustic potash, and poultice

with the elm poultice. Inject daily, either with a solution of C. tinct. myrrh, or permanganate of potash. Give internally, tonics, wine bitters, C. tinct. tamarac, C. syr. stillingia, gold, iodide of iron, keeping the secretions active.

### SPINAL IRRITATION.

Pain in the spinal column, induced or increased by pressure or percussion, often associated with a variety of neuralgic, convulsive, spasmodic or paralytic disorders, affecting in different cases all the organs and viscera of the body, and so giving rise to an endless number of morbid states.

Portions of the spinal cord are liable to fall into a peculiar state of irritation and congestion. This gives rise to every imaginable disorder, irritation of the skin, uterine derangement, heart disturbances, irritation of the lungs and bronchi, irregularity of the bowels, neuralgic pains, numbness, every variety of creeping sensations, shooting, coldness, tingling, sometimes genuine neuralgic pains, shooting accurately in the course of the nerves, intermittent or continuous; the patient may suffer from spasm or tremor, or cramp, or palsy, or pain in the joint, or nervous asthma, collapse of the lung, flatulence, &c., the various organs being sympathetically affected.

To get at the source of these symptoms, examine the spine carefully, process after process; or pass a sponge, wrung out of hot water, over them, and the patient will probably complain of severe pain over the seat of the disease; or try electricity, which will usually give us the true spot. But tenderness may be altogether absent.

Careful analysis of the symptoms of spinal irritation, elucidate the fact, *that there is a centric change so operating as to exalt the functions of the cerebro-spinal axis.*

It is not a structural change, for that is marked by paralysis; it is merely congestive hyperæmia; the change is usually solely in the circulation; it may be in the capillary circulation of the cerebro-spinal axis, or of the ganglia of the sympathetic, or ganglia of the posterior or spinal nerves, or of the fibrils of the nerves themselves. This congestion or derangement of the great nerve centre, has been termed *neuramia*, and the class of diseases to which it gives origin, *neuramic*.

With regard to the treatment of cases of cerebro-spinal irritation, let it be chiefly constitutional. It is very common as an idiopathic affection in females, whose parents have suffered from gout, rheumatism, syphilis, and who have been of a nervous temperament.

Neuramia is not unfrequently seen in females whose parents have suffered from mental aberration. This is extremely usual, and the fact is of importance in diagnosis, and in the treatment of viscera, in connection with the spinal cord.

*Treatment.*—The great principle of treatment in congestion of the spinal cord, appears to be the necessity of increasing the strength and nutrition of the body by all practicable means. Such, indeed, has been the practice of American practitioners, administering such reme-



dies as mineral and vegetable tonics, cinchona, hydrastin, phosphorus, iron.

The relief of pain is a prominent indication; remedies suited, and specially adapted to the peculiarities of the case, should be resorted to.

Endermic medication, on the principle of the incident excitor action, will be found of singular benefit. This may be used with sulphate of morphia, quinine, atropia, &c.

Counter-irritation is the most useful remedy in spinal irritation; a sovereign remedy is the irritating plaster, the whole length of the spine. Persevere with it; give now and then an active cholagogue, as euonymin and leptandrin; bathing daily with salt-water. The renewal of the irritating plaster every other day, and using for half an hour, Chapman's ice bag—moved up and down the spine. Anaesthesia is a most successful and manageable remedy; Richardson's spray of ether, also, is excellent. Use nervines, to procure sleep and keep down excitement of the nerve, as hyosciamus, lupulin and cypripedin. Keep the patient on tonics and alteratives, C. syr. stillingia, bromide of potass, gold, scutellarin, phosphorus, valerianate of quinine, gelsemin—these are good remedies; if congestion is suspected, nux vomica, ergot, belladonna, xanthoxilin, staphisagria, rhus radicans, quinine, macrotin, hydrastin.

Electricity is very valuable where the circulation is languid, or torpidity is manifest, together with tonics, hypophosphates.

Cod-liver oil, santonine, hydrastis, milk punch, where feeble nutrition is the cause.

In addition to the special treatment, which should be rigidly continued for some months, thorough hygiene must be the rule; pure air, out-door exercise, nutritious diet, agreeable, mental associations are important. A thorough system of dietetics, baths, &c., should not be neglected.

### SPINA BIFIDA, OR HYDRORACHITIS.

This is a condition of things in which the spinous processes and laminae of some of the vertebrae are cleft or deficient; when the spinal membrane, deprived of some of its natural support, yields to the pressure of the fluid it contains, and which is secreted in large quantities, and bulge out, forming a fluctuating tumor in the middle line of the back.

This affection, evidently, has its origin in the earliest stage of fetal existence, and depends on an arrest of development of the lamina of the vertebrae. In the large proportion of cases, the spinal membranes are not only distended, but nerves, or a ramification of the cord, may extend to the sac, or pass through it. In some cases the cord and its nerves are spread out upon the posterior wall of the sac. The tumor formed by a spina bifida may vary in size from that of an egg to quite a large tumor, and its integuments may be thick, and covered with a dense cuticle; or it may be thin and transparent. In some few cases, the patient has lived an ordinary life-time; generally it becomes distended, ulcerates, and the patient dies of irritation. It is very

frequently combined with hydrocephalus and club-foot, palsy of the limb, or incontinence of urine.

*Treatment.*—The tumor must never be punctured. Compression is the best mode of treatment; and, in connection with it, a strong decoction of white-oak bark, or a strong decoction of raspberry leaves, or any other good astringent. If this does not succeed, any other mode of treatment is of little avail. Compression, or moderate support by means of a truss, or some other contrivance.

## DISLOCATION OF THE SPINE.

This is a rare accident,—most likely to occur at the cervical region; met with also in the lumbar and dorsal region. In some cases it is accompanied with fracture. The injurious effects of such accidents are usually in proportion to the amount of injury inflicted on the cord; if that escapes compression, its consequences may not be of any moment. It very frequently happens, in fracture and dislocation of the vertebra, that the spinal cord is compressed and lacerated, and the parts below the seat of injury are deprived of their nervous influence; and in these cases the symptoms vary according to the level of the injury.

## SOFTENING OF THE SPINAL CORD.

This is a result of inflammation, concussion, and other injuries, and is best treated by counter-irritation, and the same class of remedies recommended in softening of the brain.

*ACUTE INFLAMMATION.*—This is often the result of penetrating wounds, blows, &c. It is known by a sharp pain up and down the back, rigors, fever, headache, delirium, coma. Some cases are attended with dysuria; others with retention of urine. Rigidity of the muscles of the back and neck is almost a constant symptom. Opisthotonos, or emprosthotonos is present; tetanus, paralysis, convulsions, constipation, vomiting; respiration slow and embarrassed.

*Treatment.*—If the patient is seen at an early stage, give an emetic of lobelia and blood-root, follow with an alcoholic vapor bath, and then an active cathartic of podophyllin, leptandrin and bi-tartrate of potassa; active and thorough course of counter-irritation over the spine. If there are spasmodic symptoms, give a full dose of equal parts of lobelia, scutellarin, cypripedin. Rest in the horizontal position is of the greatest importance; the urine should be regularly drawn off by the catheter; tonics, and a liberal diet, to support the strength.

## INJURIES OF NERVES.

Complete division of a nerve produces palsy and loss of sensibility in the parts to which it is distributed. The nerve, however, will unite in the same manner as bone, and the function of the nerve be restored. Sensibility and motion have been known to be perfect in four weeks.

Direct mechanical injury to the large nervous trunks, in addition to

causing paralysis, produces increased heat and redness in the parts, followed by exudation and inflammation. In chronic cases, the paralysis leads to atrophy and withering of the limb.

The healing of a divided nerve may be accomplished in two ways: primary and secondary union. Sometimes the divided nerves, instead of uniting, shrink, and become bulbous.

A nerve, partially divided, gives rise to excruciating suffering, as pain recurring in paroxysms, and shooting in course of the nerves, violent spasms or palsy of the limb, fits of epilepsy, and general disorder. We have also the same symptoms when a nerve is bruised, compressed or stretched.

In the treatment of such cases, the best plan is to remove the cicatrix,—divide it completely. But the great trouble with those cases is, that when once those distressing symptoms are established, even when the cause is removed that produced them, they do not subside. When a nerve is subjected to pressure, very disagreeable consequences, in the shape of palsy, numbness, spasm, are apt to occur. Counter-irritation, the internal administration of nux, phosphorus, quinine, cimicifugin, rhus radicans, belladonna; and, locally, electricity, friction, shampooing, subcutaneous injections.

Inflammation of nerves is known by pain, tenderness, with excited circulation. *Sciatica* is a good example of rheumatic inflammation of the sciatic nerve. The anti-rheumatic remedies should be used, as veratrum, cimicifugin, colchicum and alkalies; the citrate or acetate of potash, in alternation with the following pill:

Ry.—Ext. phytolacca, grs. xx;  
 Macrotin, grs. x;  
 White pine turpentine, grs. xxx;  
 Podophyllin, grs. vi;  
 Cypripedin, q. s.;  
 Ft. xxv three-grain pills.

Give one thrice daily; and a teaspoonful of the sudorific drops every night, to promote sleep and diaphoresis.

## NEURALGIA.

By the term neuralgia, we mean all those painful affections affecting the nerves, not necessarily produced by organic lesion. It may attack every system of nerves, every structure of the organism, whether external or internal. It occurs in paroxysms of intense pain, mostly of a plunging, lancinating character, shooting in the course of the nerves. The most common seat of neuralgia is in the first, second and third branches of the fifth pair of nerves, and in the portio dura. It is designated usually from its location; but these various names tend only to complicate what is really simple.

*Causes.*—The exciting causes may be of two orders: *Central*, arising from disease of the brain or spinal cord; *peripheral*, or *reflected*.

The nature of the disease is evidently functional derangement.

Pathology has thrown little light on the subject. Some authorities tell us that it is a malarial disease, being intermittent in its character; but all nervous diseases have this type, occurring at stated periods. It is probable that malaria operates to excite, or call into active operation, a diseased condition of the nerves, latent, but already existing. The malaria may act as an exciting cause in the same manner as impure air, errors in diet, mental fatigue, exhausting loss of blood, over-excitement, depressing passion, excessive labor.

Neuralgic pains sometimes arise from the pressure of tumors, exostosis, irritation of decayed teeth, injuries. Irritation of the fifth pair is the most frequent cause of facial neuralgia. The branches of this nerve are propagated to the temples, ear, face, eyes, nose, teeth and tongue, so that disease of any of those parts, especially decayed teeth, old, offensive stumps, imbedded in spongy gums, bad health, deranged digestion, will be felt radiating from the diseased point to some branch of that pair of nerves.

*Symptoms.*—Stabbing, darting pain, referred to the course of a nerve, shooting down the nerve like lightning; coming on in paroxysms, the pain is most intense.

The part affected with it is colder, the skin is numb, not tender to the touch; if it has lasted long, more or less paralysis in the muscles supplied with it. The celerity of its accession and departure, the absence of organic change in nerves that have been affected for years, prove that it is not essentially an inflammatory affection, nor is there hyperæsthesia of its healthy functions.

Nerve force is undoubtedly generated and distributed from the capillary circulation; the sentient nerve is a conductor, to the brain, of sensations taking place at the periphery.

In health, a nerve has no sensation proper in itself, and if it be cut or torn, the sensation is referred to parts to which the nerve is distributed. But, in neuralgia, it is the nerve itself to which pain is referred as darting up and down its course.

*Diagnosis.*—The characteristics of neuralgia are well defined, sudden paroxysms of exceedingly acute pain in some particular nerve, with violent lancinating pains, extending along the ramification of the nerve, in different directions, attended with turgescence of the blood-vessels in the vicinity of the part affected. The pains are sudden, severe, resembling electric shocks, and give rise to spasmodic contortions or twitching of the muscles in the vicinity. The pains are aggravated by the slightest movement or touch. In facial neuralgia there are often lachrymation, spasmodic twitching of the facial muscles, heat, tension of the affected side, stiffness in the jaw and neck, increase of pain by light, noise, motion, touch, talking or eating; heat or coldness of the body, vertigo, confusion of ideas.

If the head is the seat of the attack, we have periodic pains in some parts of the head, darting along the nervous ramification; nausea, vomiting, humming in the ears, extreme sensitiveness to touch, cold air, sounds, light.



The indications of cure are plainly and intelligibly defined, increased healthy circulation, arterial and nervous.

It is a disease that occurs in all climates and in all seasons, and is most common among females.

*Prognosis.*—This disease is not dangerous, but recovery is sometimes tedious. If it is of a rheumatic, gastric, or malarial source, it is easily cured. It is obstinate if it arises from suppressed impetigo, or gout, or cachectic diseases. Cases depending on organic change in the brain, nerves and bones, are generally incurable.

*Treatment.*—In all its forms, neuralgia requires an extended and numerous selection of remedies, remedies useful in nervous irritation and intermittent disease.

A very good mode of treatment consists in removing all sources of irritation; for this purpose give an emetic of the comp. powder of lobelia, a cathartic of podophyllin and jalapin, and an alcoholic vapor bath; then, if not removed entirely, begin a special treatment for the neuralgia.

*Aconite* may be employed with the best results if the function of the heart is affected, the vascular system out of equilibrium, flashes of heat, congestion of the head and heart, general inflammatory condition, stitching in the nerve and surrounding parts, with intolerable burning pain. An excellent local application is as follows:

Ry.—Aconitin, gr. iv;  
Alcohol, gtt. x;  
Ung. simplex, ʒi.—*M.*

Rub a small portion over the affected parts, till the pain ceases. In those inflammatory cases, it is well to make a rigid examination of all the great secreting organs.

*Belladonna* is another remedy that is indicated in inflammatory and nervous cases, with paroxysms of long duration.

The best results are derived from it in patients of a sanguine temperament and plethoric habit; cheeks red, and swollen; eyelids spasmodically closed; spasms, twitching, distortion, sensitiveness to heat or cold, and also, where we have mental disturbance, belladonna seems to possess a special power over the fifth pair of nerves, and its tributaries, possessed by no other drug. This remedy and aconite may be used with the best results as a subcutaneous injection over the affected nerve.

*Nux vomica* benefits the same symptoms as belladonna; *sanguinaria* and *veratrum* are well adapted for one-sided neuralgia, with swelling.

In the regular periodic form, sulph. quinine, bebeerin, gelsemin, prussiate ferri, cedron, lobelia, spigelia.

In the cramp or spasmodic form we must trust to cypripedin, lobelia, *rhus radicans*, and if they become worse at night, conium.

*Podophyllin* responds promptly when we have an exaltation of sensibility, dependent on rheumatic, gouty, or gastric irritation, or combined with macrotin and gelsemin in congestion of the fifth pair

of nerves—in all cases of functional derangement it is also extremely well adapted to patients of the bilious temperament.

IN ANÆMIA, pale lips, emaciation, debility; pulsatilla, iron, cinchona and hydrastin.

If it seems to be dependent on scrofula, syphilis, abuse of mercury, iodide of potass in the stillingia syrup, gold, &c.

If it arise from disordered uterine system, senecin, podophyllin and macrotin, cannabis sativa, pulsatilla, betin, are specially indicated.

When neuralgia arises from excessive loss of blood, our best remedies are cinchona, hamamelin, phosphorus, &c.

In neuralgic attacks of the heart, stomach or uterus, our best remedies are nux vomica, hydrocyanic acid, pulsatilla, digitalis, aconite.

Neuralgia from mechanical injuries, will readily yield to aconite, arnica and belladonna.

A few drops of the tincture of Indian hemp will speedily relieve cases in weakened and exhausted subjects.

Coffee proves highly valuable in neuralgic affections, accompanied by great nervous excitability, sleeplessness and mental activity. The use of hypodermic injections, in the treatment of persistent neuralgia, is attended with great success.

Strychnine in phosphoric acid meets those desperate cases of mental disturbance.

Galvanism is undoubtedly a good agent in neuralgia. Pulvermacher's chain is a valuable therapeutic agent, it can easily be adapted to the surface of the body, and is capable of generating a sustained current, producing a continuous current of electricity, of a mild and energetic character. This is regarded very highly by some patients; under its use the neuralgia disappears.

Local applications are not of much use, if they are used, chloroform, tinct. aconite, and tinct. belladonna, equal parts, or

R<sub>y</sub>.—Chloroform, ℥iv;  
Cyanide potassin, ℥iii;  
Ung. simplex, q. s.—*M*.

To give it consistency. Rub with a piece of this ointment over the affected part, or a lotion of atropia might be cautiously applied.

It must be insisted on the occasional use of an emetic, the regulation of the biliary secretion with comp. podophyllin pill, and the daily use of the alkaline bath.

After a cure has taken place, anti-periodics and alteratives.

From whatever cause it arises, the indications of treatment should be made to meet it. But if no cause can be detected, or, if detected, it cannot be removed, and fails to give relief, then a palliative treatment should be adopted.

The same local and constitutional causes that give rise to neuralgia may occasion every other symptom that can be produced by functional nervous disorder, as rigid or permanent spasm, or twitching and convulsions of muscles, difficulty of swallowing, sneezing, dumbness,

stammering, thirst, and affection of sight and hearing. The treatment must be on general principles.

The hysterical form of the affection must be treated with care and sound judgment.

## PARALYSIS.

By paralysis, or palsy, is meant a total or partial loss of sensibility, or motion, or both, in one or more parts of the body. All paralytic affections may be divided into two classes: in the one, motion and sensibility are affected; in the other, either one or the other only is lost or diminished—the one is designated *perfect*, the other *imperfect* paralysis. Imperfect paralysis is divided into paralysis of motion; and anæsthesia—paralysis of sensibility. Paralysis may be *general* or *partial*, as it effects the whole body or part of it. Partial paralysis is divided into *hemiplegia*, limited to one side; and *paraplegia*, when confined to the lower extremities.

The symptoms of paralysis occur usually without coma, loss of consciousness, or much derangement of the intellectual powers, except it be a little loss of memory.

HEMIPLEGIA usually succeeds some affection of the brain, as apoplexy, or disease of the spinal marrow.

PARAPLEGIA, or palsy of the lower part of the body, may arise from disease of the brain or spinal cord.

The term local paralysis is used when only a small portion of the body is affected, as the face, from injury or disease of the *portio dura* nerve.

There is also another form, known as *wasting palsy*—a degeneration and wasting of some disabled muscle.

*Causes.*—Palsy is due to disease of the brain; as apoplexy, abscess, softening, induration, disease of the kidneys, epilepsy, chorea, poison of syphilis, disease of the spinal cord, inflammation, disease of the membranes, lesion or compression of some nerve, by which its conducting power is impaired; some poisons, as lead, mercury, &c.

*Pathology.*—General paralysis, or complete loss of sensation and motion of the whole system, cannot take place without death immediately resulting.

Voluntary muscular motion is supposed to take place in consequence of a stimulus imparted to the muscular fibre, through the medium of the nerves, and, from a want of it, paralysis of motion, or paralysis of innervation.

The cause may be an interruption to the passage of the neurine, from some *mechanical* obstacle, as a clot, effusion; from some *physiological* cause, as cutting off the supply of nutrition; from some *disease* of the nerve tissue itself, as softening.

If irritation falls upon the vaso-motor nerves of the motor tract of the cranio-spinal axis, we have reflex paralysis; as paralysis with disease of the kidneys, the paralysis of children, from dental or intestinal irritation; loss of power over the muscles of the face, from inflammation of the fifth pair; loss of power of the muscles of the leg, from disease of the sciatic.

The transmission of the orders of the will is effected chiefly through the antero-lateral columns, and a transverse section of these always causes paralysis of the parts below. They convey the impulse of volition, not directly to the motor nerves, but to the cells of the anterior horns, which send out processes in a transverse direction to join them. Section, or disease of the posterior columns alone—the posterior roots being unaffected—causes no anæsthesia, but the reverse, in the parts below and behind; while, on the other hand, disease or injury limited to the gray matter, entirely deprives the corresponding parts of sensibility. The conductors of sensitive impressions run to the brain in the central gray matter. The loss of motion is usually more marked than the sensibility.

As a general rule, the proper vital energies of a paralyzed part are not much interfered with by a defective nervous supply. Burns, fractures and wounds heal nearly as quickly in a paralyzed part as in any other part. It is the same with the tissues, and organs, generally, as with the muscles; their own independent vital contractility is not impaired by cutting off their nervous supply; but, their sole normal stimulus to action being absent, they lie idle—waste from inaction. In general, the tissues, being always in action, require no stimulus; but the glands, being intermittent in their activity, can only be roused to energy by an appropriate excitation. If this excitation be through the medium of the nerves, it is evident that section of the nerves will paralyze them as effectually as the muscles.

### HEMIPLEGIA.

This is used to denote paralysis of one side, extending to both the upper and lower extremities. It is the most common form of palsy, and more prone to attack the left side than the right. When only one extremity is affected it is generally the arm. It is rare to have the upper extremity of one side and the lower extremity of the other side affected, forming transverse palsy.

Generally, the facial nerve, or portio dura of the seventh pair, is not involved in the paralyzing lesion; but the fifth nerve is affected, so that the palsied cheek drops loosely, while the angle of the mouth is drawn slightly upward to the sound side. The tongue is affected, so that when protruded its point is turned towards the palsied side, owing to the muscles which protrude, this organ being powerless on one side and in full vigor on the other; so that the sound half of the tongue is pushed out further than the other half, and it bends toward the affected side. The articulation is imperfect, owing to palsy of the mouth and fifth nerves; while, if the third nerve be involved, the upper lid will drop; there will be dilated pupil and divergent squint. In all cases the paralysis is limited to one-half of the body—the median line is the boundary. In most cases there is anæsthesia. Sometimes the mental faculties are unimpaired, at other times they are injured. The memory is the most liable to suffer, being weakened; and there is a tendency to imbecility. The effect of paralytic affec-



tions on the memory is remarkable—forgetfulness, misplacement of language, &c.

Hemiplegia, from white softening of the brain, depends on any condition which cuts off from the brain, or a part of it, a normal supply of blood.

Softening is most common, from forty to fifty years of age. There is generally a diseased state of the blood-vessels, a deposition of earthy and fatty matters in the walls of the vessels, causing a degeneration of their tunics.

Hemiplegia is generally the result of organic lesions of the brain; and most frequently, perhaps, the lesion is in the corpus striatum, and the optic thalamus. If the intelligence and memory are affected, then the cerebral hemispheres are involved, either directly or indirectly. The disease is not usually found on the side of the brain, corresponding to the affected half of the body, but on the opposite; the cerebral portion of the centre of volition for the left side of the body, being situated on the right side, and *vice versa*. The decussation of the fibres of the anterior pyramids at the junction of the medulla oblongata and medulla spinalis, accounts for this phenomenon. This form of paralysis may also be due to some lesion of one-half of the spinal cord, just below the decussation of the pyramids; and then the palsy will be on the same side as the disease. Hence, the term hemiplegia may signify cerebral or spinal paralysis. Hemiplegia may be transient, caused by a fit of epilepsy, or chorea, or hysteria, which, in most cases, can be diagnosed by the way in which they drag the limb while walking, without attempting to lift; while, in true hemiplegia, the patient drags the leg at the same time that he lifts it from the ground; there is also peripheral hemiplegia, in which the disease creeps from periphery to centre. In all forms the paralysis of motion is the prominent symptom; but sensation is sometimes more or less impaired.

In hemiplegia from disease of the brain, although the patient cannot, by his own will, move the palsied limb, yet the irritation of the sole of the foot, with a feather, will excite active movements. To distinguish between cerebral and spinal paralysis is not easy. The condition of the irritability or contractility of the muscular fibre in the paralytic limbs, must be our guide in diagnosis. In pure *cerebral paralysis*, the influence of the cerebrum alone is removed; there is augmented irritability and reflex action. In *spinal paralysis*, that in which the influence of the spinal marrow is also removed, there is diminished irritability and reflex action. The galvanic current is the test of the amount of irritability. This is denied by some authorities; they assert that the contractility or irritability of the muscles of paralyzed limbs bear a direct relation to their nutrition; *that* the excitability of the paralyzed muscles to galvanism varies with the condition of their nerves, more than with that of the muscles themselves; *that*, in the majority of cases of cerebral palsy, the contractility or irritability of the paralyzed muscles is less than those of the sound side, simply because their nutrition is impaired by want of exercise, and,

indeed, it is very difficult to distinguish between cerebral and spinal palsy.

*Treatment.*—The management of these cases must be entirely upon general principles. The patient must be generally brought out of the shock; depletion is inadmissible. The secretions might be stimulated, and counter-irritation over the spine resorted to. Ascertain, if possible, the character of the lesion, flex the fore-arm upon the arm, and the leg upon the thigh; take care to observe if any of the muscles offer resistance to these movements. If the muscles of the palsied limb are perfectly flaccid, the *cerebral lesion* is of an *atrophic nature*, probably white softening from a deficient supply of blood; and, consequently, stimulants, cinchona, phosphorus, nourishment, &c., are needed. If there is resistance, the brain lesion is of an irritative kind—such as may be produced by an apoplectic clot, which has lacerated the nervous substance in its vicinity; and then active treatment, as purgatives, counter-irritants, baths, C. syr. stillingia, with iodide of potass, are demanded.

If the case is chronic, stimulants to act upon the paralyzed parts, as strychnine, capsicum, xanthoxylin, &c., may be tried. Also local stimulants, as frictions with the hand, flesh-brush, stimulating liniments. Electricity has also been extensively employed, but if there is structural disease, it is apt to do harm.

## PARAPLEGIA.

Paraplegia, or paralysis of the inferior half of the body, most frequently begins slowly and insidiously, with weakness and numbness of the feet and legs, or a tingling sensation of the parts, unattended with pain. By degrees the weakness increases, until there is complete loss of sensibility and motion in the lower extremities, with paralysis of the bladder and sphincter ani; the patient is obliged to remain in the horizontal position; sloughs form over the various projections, and these, by their irritation and discharge, hasten the progress of the disease to a fatal termination.

The urine, if allowed to collect in the bladder, will become ropy, fetid and alkaline, owing to the coats of the bladder becoming diseased, and pouring forth unhealthy mucus. The urine is secreted, healthy; but admixture with the diseased mucus contaminates it, decomposes its urea, gives rise to the formation of carbonate of ammonia, rendering it alkaline.

In paraplegia, voluntary motion is completely abolished in the lower limbs; still, involuntary movements, spasms of the muscles, are not uncommon, and oftentimes very troublesome. The cause is an exacerbation of the primary disease in the spinal cord, or reflected by reflex action. Reflex movements are more easily excited in paraplegia than in hemiplegia.

Paraplegia may arise from injury of the spinal cord, or its membranes; from inflammation, congestion or hemorrhage; from inflammatory softening; from the pressure of tumors, caries of the vertebral column. Most authorities recognize two kinds of paraplegia.

1. *Cases* in which there is an increased amount of blood in the spinal cord, or its membranes. There are always symptoms of irritation, convulsions, cramps, twitchings, erection of the penis, from irritation of the motor tracts; fornication, itching, pricking; abnormal feelings of heat and cold, of tightness, pressure, from irritation of sensory tracts; diminution of temperature of the paralyzed limbs, wasting of the muscles, oedema; bed-sores, alkaline urine, from irritation of the ganglionic fibres.

2. *Cases* unaccompanied by any of these symptoms of irritation. In these there is a diminished amount of blood in the cord. The former are cases of inflammation, or congestion; the latter are cases of white softening, or of reflex paralysis. In reflex paraplegia, there is an absence of the special symptoms of organic disease of the spinal column. In them, irritation has its starting point in the viscera, skin, mucous membranes, or the nerve trunks.

*Treatment.*—In the treatment, it is important to decide whether there is any congestion or inflammation of the spinal cord, or its membranes, or whether it is the opposite condition. If the amount of blood is increased, the symptoms most prominent are, irritation of the motor nerve fibres, as itching, pricking pains, abnormal sensations of heat and cold; symptoms of irritation of vaso-motor, or nutritive nerve fibres, as wasting of muscles. In attempting to cure these cases, our object should be to diminish the quantity of blood sent to the spinal cord, and for this purpose a selection can be made from the following remedies: *ergotine, belladonna, bromide potass, iodide potass, stramonium, cannabis indica, arnica*. Locally to the spine, belladonna plaster. If there is no improvement in a few weeks, try iodide potass in C. syr. stillingia, and alternate with small doses of phosphorus. Opium must never be used, because it produces congestion of the cord. The diet and hygiene should be good. At the same time, the nutrition of the limbs should be maintained by friction, shampooing, stimulating liniments, and electricity by Faradization.

*In the treatment* of paraplegia due to diminished nutrition of the cord, where we have white or non-inflammatory softening, reflex paraplegia, a different class of remedies must be employed. Agents that will improve the general health of the patient, promote an improved standard of the blood, and cause an increased quantity of it to be sent to the cord, and augment the vital properties of the nerve centres. To do this effectually the following remedies will meet the best anticipations: *quinine, iron, phosphorus, ammonia, sulphur, conium, nuxvomica, scutellarin, lobelia, capsicum, cypripeden, rhus radicans, hyosciamin*, while we, by the use of proper remedies, make an effort to remove the cause; as by the removal of irritability, worms, teething, curing all skin diseases, &c.

*To recapitulate, then*, our treatment will consist in regulating all the secretions, and excretions, daily sponging with the alkaline or nitromuriatic wash, thorough hygiene, good diet and regulated friction or shampooing to the affected parts.

*Belladonna* is one of our most reliable remedies in congestion of the spinal cord. One-eighth of a grain of the extract, every three

hours, causes contraction of the vessels of the cord, and diminishes the amount of blood.

*Rhus tox.* is best given in cases of paralysis, where there is great sensitiveness to cold, debility, tingling, itching.

*Stramonium*, *hyoscyamus*, *cannabis indica* are like belladonna, and used in those cases of paraplegia, in which the amount of blood is increased in the spine.

*Ergot* acts, not only on the uterine fibres, when in a state of inertia, but, also, on the bladder, rectum, inferior extremities, but its special action is on the spinal marrow.

*Electricity*, when properly and perseveringly applied, will effect cures when all other resources have failed. This potent remedy should always be used under the direction of a physician; for it is an agent capable of doing serious injury when improperly applied.

*Scutellarin*, *cypripedin*, *bromide of potass* make an excellent combination in certain cases.

*Strychnine* being a powerful stimulant to the nervous system increases the amount of blood in the nerve centres.

*Sulphur and phosphorus* are well adapted to cases of spinal softening, or where there is evidence of feeble nutrition; these might be alternated with cod-liver oil, quinine, iron. In the large proportion of cases the irritating plaster is of the greatest utility; free suppuration is the end desired. In other cases, the douche, or Chapman's ice-bag is attended with good success.

LOCAL PARALYSIS is that which attends the impairment of some particular nerve—a nerve which is rarely affected by disease of the brain. This form of paralysis is generally free from danger. Exposure to cold, debility from some exhausting influence. The usual remedies must be resorted to.

WASTING PALSY, or, as it is sometimes called, creeping palsy, or idiopathic degeneration of the voluntary muscles.

The pathognomonic feature of this disease is a degeneration and consequent loss of volume, and power of the voluntary muscles, with no diminution of the intellect or sensibility of the affected part. The atrophy or wasting may affect any part of the whole body. The wasting of the muscles gives rise to a peculiar withered look in the part; while, as the muscular atrophy is usually unequal on the two sides of the body, distortions arise; the muscles least diseased overcoming the resistance of those most affected. Tactile and common sensibility are generally unimpaired; occasionally neuralgic or rheumatic pains; usually great sensitiveness to cold.

The duration of wasting is from a few months to several years. It attacks all ages and sexes. Males are more liable to it than females. It is hereditary. Exposure is assigned as a cause.

The disorder evidently consists of a granular and fatty degeneration of the muscular fibre, similar to what is observed in fatty heart. There may be no depression, still there is some defect or error in nutrition, affecting the muscular fibre, due to some unknown constitutional peculiarity.



*Treatment.*—All treatments have failed with the exception of an alterative course, C. syr. stillingia and iodide potass.

Galvanism, applied to the wasting muscles, has been particularly successful, and with it may be combined friction, warm sulphur or nitro-muriatic acid baths, exercise, and the general treatment of serofula, might, with advantage, be enforced.

MERCURIAL PALSY, or tremor, consists of a convulsive agitation of voluntary muscles, which is increased when volition is brought to bear upon them. In the advanced stages of the disease, articulation, mastication and locomotion are performed with difficulty, while the use of the hands is entirely lost. The skin acquires a brown hue; the teeth turn black.

Workmen exposed to the fumes of mercury, as gilders of buttons, looking-glass makers, and the victims who are drugged with it, are liable to the disease.

The treatment of mercurial palsy consists in the use of warm iodine baths, good diet, and the use of iodide potassium internally. The patient must, if possible, be removed from the exciting causes.

LEAD PALSY often exists in combination with colica pictonum—frequently independent of it. The poison of lead appears to exert its peculiar noxious influence over the nerves of the fore-arm and hand; in consequence of which the extensor muscles of the hands and fingers become paralyzed, so that when the arms are stretched out the hands hang down by their own weight, or, as the patient says, the *wrists drop*. The inferior extremities are rarely affected. The patient suffers now and again from lead colic.

Characteristic symptoms of the presence of lead in the system is the existence of a blue or purplish line—the sulphuret of lead on the gums, just where they join the teeth. Brush over the skin of the arm the hydrosulphate of ammonia; if it leaves a black stain, there is lead, if no stain exists, there is none. This is an excellent test as to the validity of the presence of the lead poison.

Painters, plumbers, and workers in lead or its compounds, are the victims of the disease.

In the absorption of this poison, the muscles and nerves are first affected, then the nerve centres become implicated. The muscles are contaminated first, then the nerves participate, and the poison gradually advances to the centres. This is clearly proved by the local paralysis first, and subsequently by convulsions or other symptoms of centric disease.

The treatment of lead palsy is simple but effective, viz: the elimination of the poison. For this purpose the iodide of potassium, gr. v, thrice daily, acts as a curative agent in lead poisoning, by converting the lead into a form which can be readily taken up by the blood, and eliminated by the emunctories of the body. To aid the efficacy of the iodide of potassium, galvanism should be used, also iodine and sulphur baths, friction, tonics, open air exercise, should also be enjoined.

To prevent the disease, workers in lead should drink daily lemonade made of sulphuric acid, which acts by converting the salt of lead, as it enters the system, into an insoluble sulphate.

PARALYSIS AGITANS is characterized by a tremulous agitation, or continual shaking, beginning in the hands, arms, head, and gradually extending itself over the whole body. The disease progresses slowly, but, when far advanced, the agitation is violent, deglutition and mastication are performed with difficulty; the body is bent forward; chin on the sternum, &c., &c.

As regards treatment, pure air, nourishing diet, medicated baths, tonics, iron and cinchona, and the constant use of galvanism.

### PROGRESSIVE LOCOMOTOR ATAXIA.

This affection may be considered as a form of paralysis, occurring in connection with mental aberration, characterized generally by exaltation of the imagination; it has been generally known as the paralysis of the insane, and progressive general paralysis. It is known as Duchenne's disease, or, as he termed it, *progressive locomotor ataxia*.

The affection is peculiar, not being purely paralysis, but associated with diminished insensibility and muscular power. The distinctive feature consists in impairment or loss of ability to combine and direct muscular movements. The patient may exert as much muscular strength as in health, but cannot regulate the action of the muscles for the execution of the action of volition. The defect is a want of co-ordination. The affection is supposed to depend on a tubercular condition of the cord, hence, some call it *tabes dorsalis*, or *myelophthisis*, softening of the cord.

*Symptoms.*—The incipient or premonitory symptoms are, fugitive pains in different parts of the body, which may be regarded as neuralgic or rheumatic, nocturnal incontinence of urine, spermatorrhœa, anaphrodisia, or a morbid excitability of the several organs, transient paralysis of certain nerves.

The ataxia usually first appears in the lower extremities, one limb is usually affected before the other, or the one side may be affected first, but whichever be the case, the defect of co-ordination is visible early, and very prominently, and just in proportion as the affection is marked, the patient's gait in walking is uncertain, irregular, grotesque. The body is swayed from side to side, in the effort to maintain an equilibrium. The lower limbs are thrown forward by forcible jerks, without any definite direction. Even with this state of things, the muscular power is often intact, the patient being able to travel long distances; but when the affection becomes confirmed, voluntary progression is impossible, then the patient is confined to a chair or his bed.

If the treatment is not successful, or the patient fails to improve, the disease becomes aggravated, and attacks the upper extremities, and the same defect of the co-ordinating power of the upper extremities is manifest; an inability to execute the combined movements of the fingers.

As the disease progresses onwards in its silent, but certain march, speech becomes affected, articulation difficult, imperfect; the tongue, when protruded, very tremulous; perhaps the speech so impaired as

to be unintelligible; and steadily on the disease advances, until all the voluntary muscles of the system become implicated.

The defect of co-ordinating power may be also more marked than in others. Inability to walk or stand, with the eyes closed; but this is not distinctive of locomotor ataxia.

In another class of cases, the cutaneous sensibility is more or less impaired. If this is the case, there is an additional difficulty in walking, arising from the inability to feel the contact of the feet with the ground. All the surface may be deficient in tactile sensibility.

Incontinence of urine, or retention, frequently occur in connection with ataxia. Impotence occurs sooner or later; inability to retain the contents of the rectum at an advanced period of the disease. Electro-contraction of the muscles is good in the early stages, but after a time is impaired.

*Prognosis.*—This is highly unfavorable. All that we can expect is for it to remain stationary, or advance slowly. Its progress is gradual. Its duration varies, but it almost invariably leads to a fatal result.

*Pathology.*—This affection consists in atrophy, and degeneration of the posterior columns of the spinal cord, involving first the gray substance of the cord, and the posterior roots of the spinal nerves. The principal nerves are found in a state of degeneration.

*Causes.*—It has been attributed to venereal excesses, still, its causes are not well understood. Males are more frequently attacked than females.

*Treatment.*—No special plan of treatment has been successful; some have thought electricity and shampooing valuable; others, hydropathy, a persevering use of sulphur baths; while another class prize the metallic salts of silver, gold and platinum. Special medication being useless, measures calculated to promote nutrition, and improve the tone and vigor of the nerves and muscular system, to improve the general health, to remove co-existing disorders, and palliate incidental symptoms, may do much towards retarding the progress of the disease, and prolonging the life of the patient.

## CATALEPSY.

The affection called catalepsy, is evidently allied to one of the forms of hysteria. In the cataleptic state, the sensory functions, volition, and consciousness are mostly or entirely suspended. So far, the state is essentially the same as in some cases of hysterical coma; but superadded is a peculiar rigidity of the voluntary muscles, retaining the limbs and trunk in a fixed position,—the different parts of the body preserving the positions in which they may be placed by the hands of another. This superadded feature is characteristic of catalepsy.

The cataleptic state is generally preceded by symptoms of the hysterical condition; but it often comes on suddenly, without any apparent cause. As in hysteria, the vital functions are but little disturbed. The circulation may be natural, respiration regular, temperature maintained, if food be taken and digested.

The affection is paroxysmal, but different cases differ widely as

regards the permanency and duration of the paroxysms,—being short, lasting for a few minutes; not unfrequently lasting some days.

Catalepsy is a rare disease, induced by mental causes; melancholy, over-taxing the intellect, violent excitement of the passions favor its development, and causes an attack; hatred, jealousy, fright, domestic affliction, reverses of fortune.

*The prognosis* as to dangers to life is always favorable; but it frequently terminates in insanity, paralysis, epilepsy.

The treatment is the same as hysteria. The condition of the muscles calls for friction, shampooing, stimulating liniments. Forceful alimentation is often necessary.

An analogous condition to catalepsy is animal magnetism, which is attracting considerable attention at the present time.

Another abnormal condition of the nervous system may be described as ecstasy. In this condition, the mind becomes absorbed in a dominant idea; becomes insensible to surrounding objects, but is entirely absorbed in the contemplation of some imaginary object. The eyes are immovably fixed; but impassioned sentences, fervent prayers, hymns, are uttered or sung with great expression. The mind is very active, emits brilliant ideas; most extraordinary visual hallucinations occur in some cases. The mental condition differs from that of catalepsy in this: the mind is active, and thoughts or visions which occur, are recollected afterward; whereas, in catalepsy, the action of the mind is suspended, and the period passed in the paroxysm is a blank in the patient's memory,—and the common name for the ecstatic state is a *trance*. In some cases of catalepsy, the respiration and circulation may become so feeble, that, without the closest examination, life may be supposed to be extinct.

Another condition, is that called somnambulism. This condition is incident to sleep. It embraces the mental and physical performances, sometimes very extraordinary, which are observed in sleep-walkers.

The treatment will embrace the general principles of hysteria.

## HYSTERIA.

This may be defined as a nervous disorder, assuming various forms, but commonly presenting a paroxysmal character; the attacks usually are ushered in by the sensation of a ball rising upward in the throat; a feeling of suffocation, convulsions, a flow of limpid urine, uneasiness, irregular motions, rumbling noises in the abdomen,—chiefly affecting females from the period of puberty to the decline of life, and principally those possessing great sensibility of the nervous system, mental emotion. Some regard hypochondria and hysteria as the same disease. They undoubtedly bear a resemblance to each other in numerous respects, but there are marks of distinction between them equally important, which refute their identity.

HYPOCHONDRIA invariably occurs in persons of a lymphatic and bilious temperament.

Their dispositions are generally gloomy, morose. Hope, confidence, cheerfulness, enter but sparingly into their dispositions. *Hysteria*, on



the other hand, usually occurs in females of a nervous or nervo-sanguine temperament, with cheerful, lively and ardent disposition, vivid imaginations, and highly impressible organizations; *hypochondria* is uniform, continuous, not variable; *hysteria* occurs in paroxysms, with intervals of greater or less duration, of average health; *hypochondria* is always connected with disorder of the liver and stomach; *hysteria*, owing to irritation of the nervous system, capable of being brought on by exciting causes, which operate upon the economy,—such as deranged menstruation, depressing emotions, fright, terror, disappointed love, undue excitement of the sexual organs. The peculiar irritable condition of the nervous system may exist for a long time without any actual development of hysteric symptoms, provided some of the exciting causes do not operate.

The first symptoms of hysteria are flatulency, pains, distressing sensations in the stomach, bowels, chest, head and back, faintness, vertigo, eructations, dysuria, anxiety, depression of spirits, difficulty of breathing, sense of suffocation from something like a ball rising in the throat, ringing in the ears, delirium and loss of consciousness. Such symptoms occurring in a person of purely nervous temperament, with delirium and loss of consciousness, indicate pure hysteria.

In patients of a nervous, sanguine temperament, with robust constitution, the convulsive paroxysms come on by slight twitchings of the muscles of the mouth and eyes, with wild expression, eyes rolled up, convulsive laughing, crying and sobbing, constant attempts to pull out the hair, strike the breast or some other part, or to bite, difficult or laborious respiration, succeeded by convulsions.

In other cases, the paroxysms are preceded by a croupy cough, or colic pains, or pains in the head, chest, back or pelvis.

In some cases the paroxysms come on suddenly, with warming, and the patient suffers dreadful convulsions. It is almost unnecessary to detail all the phenomena of hysteria; suffice it to say, that all can be traced to a morbid condition of the nervous system.

We may view the affection as it occurs in *paroxysms*, as it affects *sensibility*, and as it *imitates* other diseases.

*Symptoms.*—The symptoms of the pure hysteric *paroxysm*, are convulsive movements of the trunk and limbs, violent beating of the breast, tearing of the hair, shrieks, screams, violent agitation; and the attack ending with tears, crying or laughter, or persistent hiccough. The fit is often terminated by the expulsion of a large quantity of limpid urine.

It differs from epilepsy; it is peculiar to women, continues longer. The convulsive movements are of a different character; less severe; not more marked on one side of the body than the other; the respirations are never suspended; the tongue is not bitten, and it is not followed by coma, as epilepsy.

Increased sensibility of various tissues, particularly the muscles of the head, abdomen and back, often leading to the erroneous opinion that it is disease of the spine. The pain is often aggravated by pressure, by movement; *normal* emotion, variable in intensity, but no *heat*, *redness*, tension or pulsation, like as in inflammation. But, instead of

this increased sensibility, we may have the opposite condition, insensibility, or anæsthesia. Sometimes there is perfect insensibility.

Hysteria may simulate almost every disease. The patient deceives herself, and tries to mislead others; but a practiced eye will usually detect the *genuine* from the *hysterical*.

There is a peculiar expression about the hysterical, impossible to define—there is a fullness of the upper lip, a tendency to drooping of the eyelids; answer questions in a peevish manner, in monosyllables; pains are always acute by pressure, or assumed pressure. Are these sufferings real? Real, so far as they are due to a morbid condition of the great nerve centres.

*Causes.*—The *predisposing causes* are, nervous temperament, heated rooms, reading works of fiction, tight lacing, lack of exercise, habitual indulgence in amorous desires, nervousness, luxurious living. The *exciting causes*, mental impressions, irritation, sudden suppression of menstrual discharge, uterine irritation, spinal irritation, leucorrhœa.

Hysteria has long been regarded as dependent on spinal irritation. From the extent of the spinal cord, and its connection from one extremity of the trunk to the other, and its connection with the cerebral nerves, it must exercise an extensive influence on the phenomena presented by various diseases.

*Treatment.*—During a fit, the patient's dress should be loosened; she must be prevented from injuring herself; she should be surrounded by fresh air, and if she can swallow, a dose of the valerianate of ammonia should be administered. If the paroxysms continue, the sudden and free application of cold water to the head, stimulants to the spine, will probably cut it short.

Then afterwards put the patient upon special treatment to meet the indications of the case. The general health should be specially attended to, the bowels regular, the shower-bath daily, disordered uterine function regulated, &c., &c.

If it arise from a torpid condition of the bowels, and an accumulation of undigested fecal matter, and attended with bitter or acid eructations, flatulency, fullness, pain in the epigastrium, constipation, nausea, weakness, languor, tendency to convulsions, *nux vomica*, *leptandrin* and *taraxacum* are the proper remedies. If the attack seems to be provoked or excited by uterine derangement, the most suitable remedies are scenecin, macrotin, pulsatilla, iron, iodine. The bromide of potassium, in doses of from five to ten grains, thrice daily. If the catamenia are unnatural, the treatment must be made to meet the particular disorder. Thus, if too abundant, the cold hip-bath, to which might be added salt; if scanty, they should be encouraged by iron, gossypium, macrotin, electricity. In all forms of hysteria, galvanism is very useful. In hysterical aphonia, this agent is also of utility. A mild current applied by wet sponges is decidedly to be preferred. In cases of anæsthesia or hyperæsthesia, a cure is frequently effected by the proper application of this remedy.

*Lobelia* will meet numerous indications, and we would feel justified in using the remedy, if cramps existed in different parts of the body.

*Hyosciamus* has been found efficacious in certain cases.

*Caulophyllin*.—The action of this remedy is prompt; it acts primarily on the uterine motor nerves generally, controlling spasmodic action of the uterus, and also of the nerves of sensation. Its best action is to be obtained from five grain doses, repeated every three hours.

The hysterical condition calls for remedies to soothe the nervous system, but opiates should be avoided, valerian, scutellarin, gelsemin, lactucarium, lupulin, are appropriate remedies. I have treated cases lately very successfully by means of Chapman's ice-bag to the spine, for half an hour daily.

*Belladonna* is one of our best remedies; *ergot* acts well and promptly; stramonium is very useful. The irritating plaster, the whole length of the spine, should not be overlooked. Bromide of ammonia acts well.

The most important part of treatment is hygienic. Invigorate both mind and body, with regard to bodily vigor, good diet, abundant exercise in the open air, and regular habits, as regards sleep and exercise. Mental vigor, healthful occupation, and avoidance, as far as possible, of everything calculated to produce undue development of the sentiments and passions, or excite the imagination, are to be forbid. The causes of each individual case are to be removed. In the treatment of hysteria, the *douche*, Chapman's ice-bag, and electricity, are three of our best remedies.

## TETANUS.

TETANUS is a disease manifested by tonic contraction and rigidity of the voluntary muscles. There are several varieties of tetanus.

IDIOPATHIC when it arises from some disorder of the system.

TRAUMATIC when caused by a wound. It may be *acute* or *chronic*; the former arising suddenly, terminating rapidly, generally affecting the whole body, and very fatal; the chronic being less intense, of longer duration, usually partial in its extent and mostly recovering. Tetanus may be *general* or *partial*; when partial, it is mostly confined to the muscles of the jaws; constituting TRISMUS, OPISTHOTONOS, if affecting the muscles of the back, so as to draw the body backwards.

EMPROSTHOTONIS, if affecting the muscles of the neck and abdomen, so as to draw the body forwards: and PLEUROSTHOTONOS if affecting the muscles of the body laterally, so as to draw the body sideways.

*Causes*.—Individuals may be seized with tetanus although not having any breach of the surface; but, in the vast majority of cases, the affection comes on as the result of wounds of some description or other, and these generally of a very trifling character. Thus, it does not follow compound fractures of the thigh and leg as it does minor injuries of the extremities, nor is it so frequent after amputations; resection of joints, or the removal of large tumors, as it is after minor operations, so that when it has a traumatic origin, it may be looked for as most commonly resulting from minor injuries of the extremities. At all events, it is rare after the major operations, or more severe accidents, although it may occur after them. With regard to the general cause of tetanus, it is no doubt greatly predisposed to by the season of the year and

epidemic constitution. At those periods and seasons when there are great alterations of temperature, when hot days are succeeded by cold nights, tetanus becomes frequent. The circumstances in which the patient is placed exercise great influence. As a general rule, it is more frequent among young adults and elderly people than at the middle period of life; more frequent among the weakly than the strong. Indeed, when a person in apparently robust health is attacked, it will generally be found that, previously to the supervention of tetanus, he has been subject to some depressing influence—has been out of health in some way, and has lost his tone and vigor.

In military surgery a most frequent cause of tetanus is alterations of temperature, and exposure to currents of cold air.

Idiopathic tetanus is apt to supervene from disordered secretions, visceral irritation, worms, gastritis, various diseases of the chest and abdomen, uterine irritation.

It may also be caused by certain narcotic acrid poisons, such as *nux vomica*, &c.

This disease arises from local injury; most often from punctured wounds, followed with extending inflammation; and the nerves involved, being broken, laboring under the congested muscles, brings on contractions and rigidity. This nervous irritation extends to other parts, so as to cause contractions; to the spinal column, and to the brain, causing insensibility. Now the nervous centres have become seriously involved, and although, with medicine, partial relief may occur, and reason return, the assault upon the nervous system has been so serious that, in the efforts of nature to restore equilibrium, the contractions may recur.

There are several apparent causes to induce the condition of tetanus, but this condition cannot arise except by violence to the nervous system. Of these other causes it is not opportune here to speak.

*Nature.*—The exact nature of tetanus is an unsolved question. Nothing appears more mysterious than an affection like this, which seizes an otherwise healthy person, suffering from slight injury, or, it may be, disordered secretions, with the most violent convulsive spasms, terminating rapidly in three or four days, or even less. We have to inquire into the condition of the nervous system, on which such a disease as this depends. On examining the brain and spinal cord, we find nothing special to the affection; no lesion which would enable the most experienced pathologist to say that the person died from tetanus. It is true that we find some congestion, or softening, or a spinal arachnitis, just above the cauda equina, or a large amount of serosity in the ventricles or subarachnoid space, which may be turbid or bloody; but all such appearances are common to other diseases besides tetanus, and none of them will enable us to assert the existence of tetanus during life. On the most careful dissection of a tetanic subject, examining the brain and spinal cord, we find them to all appearances healthy, with the exception of some slight congestion or inflammation, or softening of a small patch in the cord, but presenting no special appearance, no organic lesion, no sign by which the most acute patholo-



gist could, by any examination, anatomical or microscopic, say they came from a tetanic patient. Finding no structural lesion, post-mortem, medical men have been in the habit of calling this, in common with other diseases of which the exact cause is alike unknown, a functional disease. But the term functional disease is used only as a cloak to ignorance, and the person who uses the expression merely means that he does not know the organic lesion on which the disorder depends.

Every function is the result of the action of an organ; every derangement of a function is the result of the derangement of the corresponding organ, and no function can be deranged without previous or co-existing derangement of the organ whose action constitutes the function. As pathology advances, the class of functional disorders becomes less and less.

There is, in traumatic tetanus, at least, always a certain condition of the nervous system to be met with, if carefully looked for, namely—an unhealthy state of the nervous branch or twig running from the wound. This twig or branch is found implicated in some way, congested, inflamed, infiltrated, its neurilemma thickened, softened and discolored, often for a considerable distance from the wound. Careful observation seldom fails to find this when it has been attentively looked for; sometimes a cutaneous branch, lying bare or inflamed in the bottom of the wound; injury to the planter nerve, by treading on a rusty nail, is often followed by tetanus, and the nerve, after death, is found irritated and inflamed. A dorsal cutaneous nerve is often implicated in a case of tetanus following a slight burn on the back, and the external cutaneous branches of the mus-culospiral is found affected as high as the bend of the elbow, in patients who die from tetanus following injury to the thumb. The same may be seen in lacerated wounds of the wrist, &c.

These and analogous cases very clearly demonstrate that, although we cannot discover any special lesion in the central nervous system, but congestion, or softening, or serosity; yet in all cases where the examination is scientifically and carefully conducted, it will be found that a nervous twig, either in, or connected with the wound, is irritated, abraded and inflamed, and this is the starting point for this so-called functional disease. An *organic lesion*, not *central* at first, but *peripheral*, exists as essential to the production of the affection.

*Symptoms.*—The patient usually first complains of a chill, with stiffness and pain in the neck and jaws, as from cold; his countenance is observed to have a peculiar expression, resembling a painful smile; the corners of his mouth and eyes are puckered and distorted by incipient spasms of the facial muscles. The muscles of mastication and deglutition become fixed and rigid with spasm, so that the mouth is permanently closed, and there is great difficulty in swallowing. To these symptoms, succeed spasms at the pit of the stomach, shooting to the back, and a convulsive difficulty of breathing, indicating that the muscles of the glottis and diaphragm are affected; and the spasm now extends to the muscles of the trunk and limbs, rendering them

completely fixed and rigid.\* The abdomen feels remarkably hard; the body is curved in some direction, or remains rigidly erect, with obstinate constipation and excruciating pain, difficulty of micturition from spasm of the perineal muscles. The pupils are contracted, the eyes are rigid and immovable in their sockets, the countenance is hideously distorted, and the saliva flows from the mouth, because the patient is unable to swallow it. The spasm never entirely ceases, but it has occasional remissions of violence, alternating with aggravated paroxysms, which are easily excited by the slightest irritation or disturbance. There is great distress, the pulse becomes irregular, the strength becomes exhausted, and there is frequently a cold, clammy perspiration. The intellect is undisturbed, and the pulse, in some cases, may be natural, except in a paroxysm, which accelerates it, and causes a profuse perspiration. Death may be produced by exhaustion or suffocation. It usually proves fatal from the fifth to the tenth day; sometimes one spasm terminates in death.

*Prognosis.*—The prognosis in acute tetanus is extremely unfavorable, especially if traumatic; favorable under eclectic treatment in the idiopathic or chronic form.

As a general rule, the prognosis may be said to be favorable, if the complaint be partial; if it does not affect the muscles of the glottis, or, if it has lasted some time without increasing in severity; if it is mitigated by remedies; if the patient sleeps, &c. It is unfavorable if the spasms increase in severity.

*Diagnosis.*—Tetanus resembles hydrophobia in the difficulty of swallowing, and aggravation of the spasm by the slightest external irritation. It may be distinguished by the spasms being continuous, and by the patient being rigid; also, by the patient being, in general, sensible and calm to the last, whereas, in hydrophobia, there are fits of general convulsions, with perfect intermission, and the patient is mostly delirious, with a peculiar mild, haggard expression of countenance. Inflammation of the spinal cord or its membranes, resembles tetanus, in being accompanied with opisthotonos, and spasmodic difficulty of swallowing, but it may be distinguished by the pain in the back, and fever being more predominant than in any case of mere tetanus, and by the paraplegia and coma, which supervene in most cases.

*Morbid Anatomy.*—Increased vascularity of the spinal cord and its membranes, without softening, or effusion of serum; sometimes the same appearance in the ventricles of the brain; vascularity of the nerves leading from the wound; of the mucous membrane of the stomach; of the sympathetic ganglia; congestion of the lungs; muscles rigid and ecchymosed, or ruptured in many parts, and the blood uncoagulated.

*Pathology.*—The spasms of tetanus, affecting all the voluntary

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\* The spasms depend on two causes; first, on a morbidly excited condition of the gray matter of the spinal cord, induced by the hyperamic and morbid state of its blood-vessels, propagated from the injured nerves, and resulting in exudations and disintegration of tissue; and secondly, on irritation propagated and spread through the morbidly excitable cord from the same source, from the periphery of the diseased nerves.

muscles, depend evidently on a morbid condition of the central organ, the spinal cord and medulla oblongata, from which all the voluntary muscles are supplied with nerves, and this morbid condition may depend on *eccentric* causes; that is, on causes affecting the spinal marrow itself, or on *eccentric* causes; that is to say, on irritation of some other part of the body, which irritation is conveyed to the spinal cord, by the sentient, or efferent, or excito-motor nerves.

*Treatment.*—Bearing well its pathology in view, the correct and rational indications of treatment are evidently to subdue spasm, and unnatural excitability; to diminish centric irritation; to remove all eccentric causes of irritation, from whatever source.

In order to meet the first and most pressing indication, namely, to subdue spasm, &c., administer at once to the patient, either the compound tincture of lobelia and capsicum, or Thompson's third preparation of lobelia, in teaspoonful doses, every few minutes, pouring it slowly in the corner of the mouth, and let it run between the teeth.

This will probably soon produce such a state of relaxation, that the patient will be able to swallow. At the same time, give an injection of the same preparation, using a large syringe with a long pipe. The effect will not only be relaxation, but excessive muscular prostration, with nausea and vomiting. There is no danger, however, of non-recovery from the effect of the remedy.

After relief is thus obtained, nausea and relaxation must be kept up by repeated, but small doses of the same medicine.

At the same time, dry cup the entire length of the spine freely: follow with strong stimulation along its course by mustard or oil of capsicum, keeping up permanent irritation for a considerable time.

The part injured should be promptly attended to, removing foreign bodies if there be any; and if the wound has healed, it should be immediately opened, and the caustic potassa freely applied. Then to the injured part apply a poultice of equal parts of powdered lobelia and elm bark, made with hot ley-water; it should be changed frequently.

The patient must be kept perfectly quiet, and an anodyne of lupulin, or hyosciamus, or a subcutaneous injection of morphia, may be given. If we once get the patient favorably over the first two days, in addition to the above means, it will be found good practice to apply ice to the spine, and produce local anæsthesia. This might be done every two or three hours, following each application with a solution of the extracts of lobelia, stramonium and hyosciamus.

For internal treatment, gelsemin, with quinine and scutellarin, may be given in sufficient quantities to keep the patient under the relaxing influence of the gelsemin.

I am perfectly satisfied that the above is the only successful method of treating tetanus; that it is a treatment that will succeed in a majority of cases. To drug with the usual remedies, is utterly useless; even our most concentrated vegetable sedatives, aconite, belladonna, &c., are unavailing, when the disease is acute, in retarding, mitigating, suspending and arresting its progress. American Eclectics

have long ago laid aside the routine treatment, and laid hold of treatment here laid down, with wonderful success. As adjunct treatment to the above plan, various remedies have been recommended.

Some suggest that the first thing to be done, is to divide the nerve leading from the wound, where it can be found and isolated. The better plan, if this course is decided on, is to divide the trunk of the nerve high up in the limb, so as to get beyond the sphere of local irritation, which appears to be the chief organic lesion discoverable in those cases. Patients have been cured by this means. It is not, however, invariably successful. Other measures will suggest themselves besides cutting the nerve, applying escharotics to destroy an ill-conditioned wound, the excision of the wound, &c.; but it unfortunately happens that the tetanic condition of the spinal cord, when once fully established, is mostly independent of its local exciting cause, and does not cease on its removal; hence, amputation of the injured part has rarely been successful, and has even aggravated the mischief, so that, as a general rule, it should not be performed, unless demanded for some other reason besides tetanus.

*Aconite*.—In addition to the treatment laid down, some Eclectics have used, with good success, aconite as an auxiliary agent. The alcoholic tincture of the leaves is the best preparation of the drug for internal use. It is best given simply in water, in full doses; it is an anodyne, an anti-neuralgic and calmative. It acts mainly on the spinal cord, inducing muscular paralysis, and affects the brain but little. There is one fact that must always be borne in mind in administering aconite or other narcotic remedies. So long as their effect on the system is the arrest of some morbid action, so long, as a general rule, will their ordinary physiological influence on the system be suspended. Our limit to the use of medicines, in all forms of this disease, is not to be fixed by the boundaries within which they are safely restricted in healthy states of the body; they must be given largely, as large as can be tolerated; and, in order to aid us in the giving of special remedies, the rigidity of the jaws must be removed.

There is another point in the treatment of tetanus to which allusion might be made. It has been generally thought that a free action of the bowels should be kept up by means of powerful purgatives. My experience is, that, except as a preliminary step, to remove any matter which might be lodging in the bowels at the time of the attack, no benefit attends the practice, and that very frequently harm is done by keeping irritation in the alimentary canal, when our object should be to ensure as quiescent a state of the system as possible. More real good will be derived from enemata of a stimulating character. Once having the intestines cleansed, it is only advisable to keep the secretions moderately active.

*Tobacco*.—This agent has acquired a high reputation as an efficient remedy in tetanus. Nicotine has been much used, and with good success, among British practitioners. In the absence of the valerian, capsicum and lobelia, it is worthy of more extended trials; quite a decided effect, and often favorable results, follow an enema of tobacco. It induces deadly sickness, cold, perspiration, fainting, powerful relaxa-



tion of all the muscles, followed generally by sleep. The enema may be repeated thrice daily, or just often enough to keep the muscles of the patient perfectly relaxed. In the use of this, care should be taken to keep up the strength; beef essence, milk punch, brandy, or other stimulants, if the heart's action appears enfeebled.

*Woorali poison.*—This is another agent of considerable importance in tetanus. It is a direct sedative to the motor nerves, and is capable of curing when some other remedies fail. It is said to produce general relaxation of the muscular system, and the patient experiences speedy relief. The success that has attended the administration of Woorali poison, and its good effects in nearly all cases where it has been tried, warrant a fair and impartial trial at the hands of the profession. It is a good antidote to strychnine, and no doubt a dangerous poison, but in the hands of those habituated to its use, its exhibition is no more to be dreaded than opium, or any of the narcotic remedies.

*Cold.*—This is one of the most valuable remedies in all convulsive diseases. Ice in an intestine to the spine, in tetanus, is of eminent service. It is an anæsthetic, or destroyer of local sensibility; is a most successful and manageable remedy. It is a remedy that can be used with excellent effect, and cases might be cited where it has effected cures. It cannot be safely recommended to apply it extensively to the surface in such a disease as this, however careful we may be in supporting the circulation by internal stimulants. The cold-bath and cold effusion are of service in chronic tetanus, but more hazardous, and often fatal in the acute forms.

One truth we must bear in mind, that cold or heat applied to particular portions of the back, directly exalts or lessens the reflex activity of the gray matter of any given segment of the cord, and we thus possess a remedy of power in tetanus.

*Indian hemp.*—This agent, a mild stimulant narcotic, has been employed in Hindoostan with good results. It is given in tincture of the extract in immense doses, so as to produce intoxication. It has been used to a considerable extent in this country without any satisfactory results.

*Chloroform* internally has been successful in arresting the paroxysms. *Gelsemin* also is a never-failing remedy.

*Opium.*—Anodynes are of the most undoubted utility in some instances, more especially those attended with a painful wound and weakness. When they produce good effects, they are soon manifest, but they must not be depended on in a disease like this. They diminish irritation, but are calculated to depress nervous excitement. The best way of administration is by the skin, either by frictions incorporated in a liniment, or by removing a small portion of the cuticle over the spine with a blister, and sprinkling on the sulphate of morphia, atropia, or gelsemin on the denuded cutis, or by means of hypodermic injections. If given internally, it should be given in large doses and in liquid form, so that it can be easily absorbed.

*Galvanism.*—This has been successful in numerous cases. Numerous cases are on record where the disease has yielded to stimulation, brandy, xanthoxylin, capsicum, also tonics, as quinine, phosphorus, &c.

Phosphorus is a good tonic in chronic tetanus, given in the quantity of one grain daily, well triturated and gradually increased.

ALLOPATHY makes use of the various anti-spasmodics, as camphor, musk, ether, stramonium, belladonna, digitalin. Colchicum has been of service in some few cases.

Counter-irritation is also most successful in the relief of both the acute and chronic form, and not unfrequently aids in the cure. This is a well observed fact in certain cases of spinal irritation.

To the young practitioner we would say, never despair, of a case of tetanus, if you can only get the remedies administered; it will render the patient better able to fight the battle of spasmodic action; never allow tetanus to run a certain course, it may have its period of accession, its height and intense activity, and gradual decline, but never let it kill before exhaustion takes place.

A successful course of treatment has been, and now is, by Reform Physicians, as follows:

1st. If the wound be not discharging, but swelling, dry and painful, at once apply active caustics, followed with a cataplasm of powdered flax-seed and leaves of lobelia, and tobacco, mixed with boiling water, adding tincture of capsicum and myrrh.

R<sub>y</sub>.—Pulv. lobelia, fol., ℥i;  
           “ ipecac, ℥ii;  
       Boiling water, Oi.—*M.*

*Dose*.—Half a tea-cup full every ten minutes, a mustard cataplasm to the whole length of the spine. Vapor-baths, by bricks or otherwise, to the feet and limbs.

2d. The chief object is to arrest spasmodic action. To do this, full vomiting must be induced, and the remedy must be pressed to this point; but should this seem to fail for a time, then enemas.

R<sub>y</sub>.—Powdered lobelia leaves, ℥ss;  
           “ slipperly elm, ℥ss;  
       Boiling water, Oi.—*M.*

Using this as warm as can be borne, with a good syringe. Press the emetic doses, while adding an alkali of saleratus or soda, ten grains to each draught of the emetic preparation.

Should the emetic still fail, and spasms continue, then for enemas; tobacco leaves one drachm; boiling water, one pint; divide in three parts; use every two hours.

If these remedies possibly fail, take the pipe of lighted tobacco, with the hand around the bowl, the stem in a tumbler of water, and blow the smoke into the bottom of the water; give this impregnated or smoke-water to the patient.

Press these remedies to their legitimate effects of vomiting, relaxation and prostration; then the spasms disappear; they have gone. But at this point, stimulants may be needed.

3d. The attack being subdued, guard its return with the emetic infusion above named, in a teaspoonful dose every two hours, and tincture of veratrum viride, thirty drops in a tablespoonful of water every

two hours—alternate, being a dose every hour; increase or lessen as indicated.

Stopping these last remedies, the bromide of potassium, twenty grains in two ounces of water, every six hours.

Allopathy says nothing checks its onward march. But, under the reformed practice, local applications and proper internal remedies are brought to bear to overcome and conquer the disease. In the general management of the patient, we must ever bear in mind that we have a most exhausting disease to deal with; so that it is indispensable to maintain the forces of the system by appropriate food as well as medicine; the patient sweats profusely, and would soon sink if not supported. The patient should be kept perfectly quiet; all sources of irritation must be removed; his bed should be surrounded with curtains, as currents of air are apt to excite spasm. Everything should be so managed as to cause as little annoyance as possible.

In the chronic form, the case is very different, being seldom fatal; although, in some rare instances, the patient has died, completely exhausted by its long continuance. If the patient survives the fifth or sixth day, we may entertain hopes of his recovery. He should be kept quiet; strength should be maintained: the antispasmodic tincture should be given; alteratives, counter-irritation, aconite, cannabis indica and belladonna, are the best remedies. Patients get well under this treatment, with tonics, shower-bath.

To sum up, then, it appears that, so far, the best prospect of a cure consists either in the administration of the remedies mentioned, in division of the nerve, where this is practicable; in the employment of every means to keep down excitement, proper hygienic dietetic means in the removal of all sources of irritation, local and constitutional. Such a course of proceeding is more rational, holds out a better chance of success for the patient than the empiricism of bleeding, calomel, opium, which experience has often and again proved to be unavailing in curing the disease, or mitigating its suffering.

**TRISMUS INFANTUM.**—This is a form of tetanus, almost unknown in the United States. It exists only in desolate regions; and the causes appear to be want of ventilation, filth, meagre and unwholesome food of the parents—such as living almost exclusively on fish, sea-birds, certain grasses, &c.; and the exciting causes, the use of irritating applications to the wound left by the falling of the navel string. The usual time of appearance of the disease is from the fifth to the tenth day after birth.

*The symptoms* are, lock-jaw, spasmodic difficulty in breathing and swallowing, and general convulsions. They are almost invariably attended with diarrhoea, fretfulness, startings during sleep, and unusual greediness for the breast.

*Treatment.*—This is seldom successful; warm baths, stimulants, enemata of the antispasmodic tincture, and the general treatment of tetanus, are the measures that will benefit.

The great principle in the treatment of idiopathic tetanus, is the removal of the peripheral source of irritation from which it arises. Thus, cutting the gums, diminishing acidity in the stomach, removing

undue accumulations in the intestines, and the destruction of worms, are the appropriate means for combatting the convulsive disorders of infancy and childhood. Tetanus may often be prevented by attention to the local causes which induce these disorders.

**HYSTERICAL TETANUS** is only a characteristic or type of hysteria. It frequently assumes all the outward symptoms of the disease, and simulates it very exactly, although careful investigation may always detect the real features of hysteria. Thus, it will be often found that a hysterical female is seized with stiffness of the muscles of the face and jaws, which may extend to the face and neck, and gradually invade the trunk and limbs, so as completely to close the mouth, and render the whole body rigid and motionless. The chief points of diagnosis are the hysterical state of the mind of the patient, and the fact that the muscular contraction, however great, may always be overcome, for the moment, by forcing the patient to exert her volition. Hysteria is always associated with uterine derangement,—on the removal of which the cure depends.

The ready method of applying numerous remedies for the cure of morbid states or particular symptoms, is dictated by our knowledge of excito-motor actions; alteratives, nerve sedatives, shower-baths, galvanism along the spine, &c.

**PUERPERAL TETANUS.**—Traumatic tetanus does frequently supervene as a secondary obstetrical disease, and the general treatment that we have laid down must be adopted.

Stramonium, in large doses, sufficient to dilate the pupil, is the only remedy, in alternation with the comp. tincture of serpentaria.

This has been a specific in puerperal tetanus.

## CONVULSIONS.

This term is applied to sudden spasmodic, involuntary action of the muscles; convulsions are generally the result of disease, either functional or organic, of the cerebro-spinal axis.

They may depend upon a derangement of the circulation of blood in the brain, or a lesion of its substance, from irritation propagated to the brain, or violence done that organ. The morbid phenomena which originate in diseases of the great nerve centres, is, undoubtedly, due to some particular taint.

In all inflammatory excitements, mental excitement is an indication of inflammation, or irritation of the hemispherical ganglia, and, convulsions are indications of irritation or inflammation of the medullary portion.

*Diagnosis.*—Indications of the eye, a dilated pupil indicates serious injury to the optic nerve or nerve centres, with which it is connected; a contracted pupil, indicates an irritability of the nervous instruments, and undue excitement of their functions.

Convulsions result either from some appreciable lesion of the brain, or from sympathetic action, reflected from distant parts.

A most important point in the diagnosis of all cases of convulsions in children, between the ages of four months, and three



years, is the condition of the gums and teeth. Dentition is the perilous period; then we have a highly irritable condition from the state of the gums.

If the child is over three years of age, the diagnosis is much easier, for, at this age, the convulsions are sympathetic of some irritation, or symptomatic of some disease of the brain.

In a large proportion of cases, the brain suffers sympathetically, not from disease of its own substance, but from reflected irritation, as worms, acidity, striking in of eruptions.

Violent spasmodic affections sometimes attack children who are tainted with some peculiar dyscrasia, without any apparent cause; but, in general, they are produced, either by a lodgement of some acrid matter in the intestines, or flatulence, or they arise from teething, worms, the sudden striking in of an eruption, or the infection of small-pox. Any trifling matter, capable of irritating the nervous system, will induce symptomatic convulsions in some children, whilst others will withstand a great deal. The younger and more irritable the child is, and especially if it be of the encephalic temperament, or strumous diathesis, the more liable will it be to symptomatic convulsions, especially from any slight disturbance in the alimentary canal. Convulsions are always dangerous, as well as alarming; and a surer indication of danger is to be drawn from the distance of the paroxysms than from the forcible contractions of the muscles, during the fit. Where the intervals are short, although the fit itself be not long or violent, the disease is to be considered as more dangerous, than where severe paroxysms are attended with long intervals.

*In the treatment* of convulsions in children, the chief object to be attended to is the removal, if possible, of the cause which has given rise to them. If they seem to be occasioned by improper food and indigestion, a gentle emetic may be given, and for this purpose, the wine of epec, or lobelia, given in twenty-drop doses, every few minutes, until the desired effect is produced. When supposed to proceed from a lodgment of acrid matter in the bowels, this should be removed by an enema of an infusion of the skull-cap and lobelia, or some gentle remedy given by the mouth, as leptandrin and rhein; if from flatulency, then carminatives, as cypripedin, xanthoxylin, &c., and if from teething, whenever the tooth can be discovered working a passage through the gum, a slight scarification should be made with the lancet immediately over it, and this operation may be repeated for several successive days, till either the tooth is free, or the convulsions cease. If slight scarifications are not found to answer the purpose, we may boldly cut down to the tooth, and liberate it in every part; and this plan we may likewise adopt with all such as are making their way through the gums.

Acidity is a very frequent cause, and one that is generally overlooked. Acidity gives rise to colicky pains; hence, in irritable subjects, this griping gives rise to reflex action. In these cases, neither the anti-spasmodic tincture, nor belladonna, musk, nor any of the anti-spasmodic remedies will be effectual in removing the convulsive affection. Some alkali, capable of removing or neutralizing the

acidity, will alone be effectual, such as small doses of the super-carbonate of potass, or the neutralizing mixture. Worms are to be regarded as a frequent cause of recurring convulsions, and it is proper to have recourse to such remedies as santonine, cheloniin, &c., and the remedies recommended under that head, when, from the prevailing symptoms, we suspect them to have been excited by this cause.

Should convulsions arise from the striking in of an eruption, or the drying up of a discharge, warm-baths, the vapor-bath, by means of hot bricks wrapped in cloths wet with alcohol, placed around the patient; the perspiration so induced, must be maintained by the administration of warm infusions of aconite and belladonna.

When the disposition to convulsions continues, after the bowels and stomach have been properly cleansed, we must have recourse to antispasmodics, to allay irritation: the *C. tinct.* of lobelia and capsicum, should be given until they cease; for the sooner we destroy spasmodic action, the better for the patient; warm bath and mustard poultices, should be applied to the feet, enemata of assafoetida, or cannabis indica, counter-irritation to the spine, and the occasional application of ice, cold to the head; rubbing the spine, palms of the hands, and soles of the feet, with oil of lobelia, may have a good effect. When a high degree of organic debility prevails, stimulants may be added, and nourishing enemata may be persevered with.

When convulsions are not preceded by any of the usual symptoms, they may be regarded as idiopathic. In difficult labors, for example, the brain is often much compressed, and soon after delivery the child is attacked with fits. In such cases it is often advisable to allow a teaspoonful of blood to flow from the navel string before it is tied, and in this way oppression of the brain will be relieved, and disagreeable consequences will often be prevented. But if this is overlooked, and fits have actually come on, we must make revulsion by resorting to the hot-bath, the application of sinapisms to the extremities, and the exhibition of the *C. tinct.* lobelia, both by the mouth and the rectum. Chapman's ice-bag to the spine is excellent in convulsions. Inward fits are much talked of by ignorant nurses; and, indeed, some authors make mention of them. During the first five or six weeks infants are liable to them. The usual symptoms are—the child, when asleep, has its eyelids not quite closed; the eyes twinkle, with the white turned up; there is a kind of tremulous motion in the muscles of the face and lips, which produces something like a smile, sometimes the appearance of a laugh. As the complaint increases, they would seem to stop; the nose becomes pinched; there is a pale or blue circle around the mouth and eyes, which sometimes become livid, and comes and goes by turns; the child starts, especially if it is stirred ever so gently, or if there is the least noise. Thus disturbed, it sighs or breaks wind, which gives relief for awhile, but presently it relapses into dozing. Sometimes it struggles hard before it can break wind, and seems as if falling into convulsions; but a violent burst of wind from the stomach or rectum, or vomiting of acid matters, or a loud fit of crying, sets all to rights again. For the relief of these, a few drops of the *C. tinct.* lobelia,

according to the age of the infant, the exhibition of some alkali; and if the child sleeps too long, and these symptoms recur, take up the child, tap it gently on the back, rub its stomach and abdomen well before the fire. This gentle exercise will probably bring the wind from the stomach, the alkali will remove the acidity, the lobelia will remove any spasmodic symptoms, and the child will then go quietly to sleep. Should these simple means not prove sufficient, some carminative may be given, such as a drop or two of the oil of anise or caraway, on a little white sugar.

If the convulsions remain after the removal of the cause, then some of the following remedies should be tried, either alone or alternately with others.

*Stramonium* is valuable where the paroxysms succeed each other quickly, and do not decrease in severity. It might be gradually persevered with until the pupil is slightly dilated, and cerebral anaesthesia is induced.

*Lobelia*, given in small doses, repeatedly, until profound relaxation is induced.

*Dulcamara* and *nux vomica*, where there is low delirium.

*Skunk cabbage*, if they assume an epileptic form.

For an alterative, five grains of the bromide potass, in C. syr. stilingia, three times daily. Also the irritating plaster along the spine.

## EPILEPSY.

This disease consists in a sudden deprivation of the senses, accompanied with a violent convulsive motion of the whole body, recurring at intervals. It is a common disease of infancy. Female children are more subject to it than males. It attacks by fits, and, after a certain duration, goes off, leaving the patient in his usual state of health; but sometimes a considerable degree of stupor and weakness remains behind, particularly where the disease has frequent recurrences. Its returns are periodical, and its paroxysms commence more frequently in the night.

Epilepsy is properly distinguished into sympathetic and idiopathic—being considered sympathetic when produced by an affection in some other part of the body, such as acidities in the stomach, worms, teething, &c.; and idiopathic, when it is a primary disease, neither dependent on nor proceeding from any other.

The causes which give rise to epilepsy are—blows, wounds, fractures and injuries to the head, effusion on the brain, tumors, concretions, polypi, malformation, violent affections of the nervous system, frights, passion, great emotion, intoxication, acute pain, worms, teething, suppression of some evacuation, poisons. Sometimes it is hereditary, and at others it depends on some predisposition, as plethora, debility.

An attack of epilepsy is usually preceded by a heavy pain in the head, dimness of sight, noise in the ears, palpitation, flatulency, languor, stupor, spectral illusions, giddiness, confusion of thought, and, in a few cases, there prevails a sense of something like a cold vapor rising to the head; but it more generally happens that the patient

falls down suddenly, without much warning. His eyes are distorted or inverted, so that the white of them can be seen; his fingers are closely clutched; his limbs, and the trunk of the body, particularly on one side, are much agitated; he foams at the mouth, and thrusts out the tongue, which often suffers great injury from the muscles of the lower jaw being also affected; he loses all sense of feeling, and not unfrequently voids both urine and fæces involuntarily. After a continuance of the convulsions for some time, they abate, gradually, and the patient continues for a short time in a state of insensibility; but, on coming to himself, feels very languid and exhausted, and retains not the smallest recollection of what has passed during the fit.

When the disease proceeds either from tumors, polypi, malformation of the bones of the skull, the case is hopeless. When it arises from hereditary disposition, or comes on after the age of puberty, or where the fits recur frequently, or have become habitual or of long duration, it is difficult to cure. But when it comes on at an early day, is occasioned by worms or any accidental cause, it is amenable to treatment. It terminates in apoplexy, in mental derangement, impairment of the mental faculties, imbecility.

Epilepsy has been perceived to disappear suddenly about the age of puberty, liable to increase in parturition, and by everything capable of debilitating the system.

*Treatment.*—The indications of cure will vary according to the cause which occasions the disease. If it is sympathetic, and arises from worms, then such remedies as santonin, male fern, pumpkin-seed oil, and other medicines possessed of the power of destroying or dislodging the vermin, should be used. If it proceeds from teething, scarify the gums freely, stimulate the liver by euonymin and leptandrin; follow with the neutralizing cordial, bath, &c. If it arises from acidity, an emetic of the C. powder lobelia, followed with the neutralizing cordial, aqua calcis, absorbents and alkalies. If the disease appears to arise from any suppressed discharge, appropriate measures should be adopted to bring it back; if from constipation, podophyllin, leptandrin and nux vomica; if from any stimulus which occasions pain or disturbance, this ought to be removed as quickly as possible; if from partial division of a nerve, it ought to be entirely severed, and communication between the part and the great nerve centres cut off, &c.

In the idiopathic epilepsy, the cure consists in avoiding the occasional causes, and in removing or correcting those which predispose to it. The occasional causes which are to be avoided, are, over-distension, turgescence, intoxication, passion, emotional disturbance. And, as all spasmodic disease is confirmed or impressed upon the great nerve centres by repetition or habit, so the avoidance of a recurrence is of the most essential importance. Indeed, it is a well attested fact, when once the great nerve centres are thoroughly impressed, that although all causes are removed, it will continue. And it should be our effort in all cases to make nature discontinue the custom or habit if possible.

If we can anticipate an attack, no medicines, perhaps, under such circumstances, is so likely, so positively and effectually to prevent an epileptic fit, as the C. powder of lobelia, given freely before an expected



attack. Change of habits, mode of life, &c., is serviceable in such cases. If the predisposition to the disease has arisen from a plethoric state of the system, congestion in any of the great cavities, then our arterial sedatives, with podophyllin and jalapin, are appropriate remedies. To produce a permanent effect, they must be continued; the constitution must be kept under their influence. If the predisposition is owing to a state of debility, then tonics, with generous diet, appropriate exercise, cold-bath, and antispasmodics generally; from among our concentrated remedies, I like cypripedin, macrotin, hyosciamin.

Hypodermic injections of morphia, atropin, gelsemin, &c., may be resorted to with advantage. And, indeed, I am in the habit of resorting to these on each side of the spinal column, with good success.

In cases of epilepsy which depend upon some functional organic change, a tonic treatment, with small doses of the extract of calabar bean, is often successful. Some are partial to the sulphate of zinc, oxide of zinc, phosphate of zinc and silver, sulphate analine, &c.; but there is nothing to recommend them to the profession. The hydrocyanate of iron is an excellent remedy, in ten grain doses, in alternation with cypripedin.

I am very partial to ice to the spine in all convulsive diseases. Convulsions cannot occur without some affection of the medulla oblongata, or spinal cord, direct or indirect. The sedative agency of cold to the spine; its effects on the gray matter of the cord is positive—controls the irritable state of the cerebro-spinal axis.

Of all the narcotic remedies, belladonna has the strongest claims upon the profession. This remedy is undoubtedly curative in a large proportion of cases. If given, give it a fair trial, not for a month but for a year, begin with  $\frac{1}{8}$ th of a grain of the extracts three times a day the first month, and double every month, until its constitutional symptoms become manifest, or the disease subsides; then come gradually back to the small dose with which we commenced. The extract, in trituration, is the best form. The phosphate and valerianate of zinc is also of utility.

Digitalis has produced good effects, the saturated tincture in large doses is very beneficial; so is the cotyledon umbilicus, belladonna, chloroform; the latter is positive, for just as long as the patient is under the influence of chloroform, no convulsions can be produced. Chloroform controls or modifies the convulsions of epilepsy. Strychnine, dissolved in acetic acid, is a most valuable combination.

Free purgation is occasionally good, by eliminating the poison from the blood, which is the cause of the fit. The poison is supposed to depend upon an excess of an alkali in the blood, which converts urea into carbonate of ammonia. This engenders noxious matter, which operates on the brain and spinal cord; hence the value of nitro-muriatic acid internally and as a bath, and other acids in the treatment.

Our concentrated vegetable tonics, as hydrastin, scutellarin, cypripedin, macrotin, cinchonin, stramonium, ignatia, cicuta, cocculus, have been much used in the cure of this disease; and if it manifests periodicity, prussiate of iron, quinine and gelsemin. Some of the worst forms of

epilepsy are often successfully treated with electricity. It is a remedy that should be employed more frequently than it is.

In the early stages of epilepsy, our best anti-spasmodics will control the disease. But, however long standing the case may have been, the most positive remedy is the bromide of potassium. Take of this salt, ten grains, in a wine-glassful of water, morning and evening. If necessary, increase each dose to twenty grains. For a child, begin with three to four grains. Counter-irritation over the whole length of the spine, with the irritating plaster, should not be neglected.

The diet in epilepsy should consist of such as is light, nutritious, easy of digestion, avoiding all agents that create flatulency. Cheerful society, placid mind, guarding against all violent passions or other emotions. Relieve every present indication, let it be gastric, enteric or uterine. Cold sponging, friction, fresh air, exercise. Watch the patient closely when an attack is threatened; if the paroxysms approach, inhale spirits of ammonia; and if the fit comes on, raise the head, expose the face and neck to the air, and dash cold water in the face to excite a forcible inspiration, by which the larynx may be opened; apply a lotion to the head, warmth to the feet, and guard the patient against accident.

### CHOREA.

This disease is marked by convulsive actions, most generally affecting one side, and affecting principally the arm and leg. When any motion is attempted to be made, various fibres of other muscles act which ought not, and thus a contrary effect is produced from what the patient intended. It is chiefly incident to young persons of both sexes, but particularly females of a weak constitution, whose health has been impaired by confinement, improper food, and makes its attacks between the ages of ten and fifteen; not very common after puberty.

The cause of this disease is evidently some want of harmony in the great nerve centres, the brain and medulla oblongata, or congestion of the meninges of the spinal cord, from some latent cause or poison, or organic disease of the brain. It may be occasioned by various irritations, as teething, worms, acrid matter in the bowels, poisons, pregnancy, falls, injuries, irritation, violent affections of the mind, as horror, fright, anger, &c. In a numerous class of cases, it is produced by general weakness and irritability of the nervous system.

*Symptoms.*—In the progress of this disease, all the voluntary muscles become affected; the patient cannot keep quiet; there is a constant movement of the hands, arms or legs; the features are curiously twisted and contorted; articulation is impeded. If the patient is asked to put out her tongue, she is unable to do so for some minutes, but at last suddenly *thrusts* it out, and as suddenly *withdraws* it. In walking, she advances in a *jumping manner*, by fits and starts, dragging her leg rather than lifting it, and alternately halting and hopping. She cannot sit still; her shoulders writhe about; she picks her dress, shuffles and scrapes the floor with her feet; contortion of the facial muscles. During sleep these irregular actions cease. The eye loses its lustre and intelligence, and the countenance is pale, and expressive of

vacancy; deglutition is performed with difficulty; articulation is impeded or suspended. In advanced stages of the disease, flaccidity and wasting of the muscles; the consequence of constant irritation, poor appetite, impaired digestion, swollen, hard abdomen, constipation. On auscultation, an anemic bellows-murmur will frequently be heard, accompanying the first sound of the heart.

In some instances the mind is affected with some degree of fatuity, and exhibits itself in causeless emotions, as weeping, crying, &c. It is seldom fatal, or even dangerous, unless it merge into organic disease of the nerve centres. It may last an indefinite period, and is often complicated with rheumatism, hysteria, &c.

When it affects children, it usually ceases at the age of puberty; and when it supervenes in adults, it usually gives way by a change from the former mode of life, or removal of the exciting cause.

*Causes.*—A naturally delicate constitution, or one that has been impaired by the abuse of medicines, and a highly nervous temperament, are conditions favorable to the production of chorea—so acting upon the spinal cord as to create disturbance of its equilibrium; an inequality of the functions of the nerve centres. The exciting causes are, the depressing passions, fear, terror, masturbation, irritation of the bowels from worms, and fecal accumulations, cold, insufficient nourishment, excessive loss of blood.

*Treatment.*—The principal indications in treatment are the removal of the exciting causes. For this purpose, if chorea arises in a weak, irritable habit, and is wholly unconnected with any species of irritation, as teething, worms, we should employ first *purgatives*, then *tonics*. Unload the bowels, if a torpid condition of the intestines and liver exist, by podophyllin, leptandrin; and for the purpose of restoring tone, add strychnine and iron, and combine this excellent combination; and if the tongue is furred, add the iodide of potassium to the above formulæ. This purgative tonic treatment often succeeds. Purgatives remove the irritation of the intestinal canal; they prevent the local determination of blood, which is usually present in excitement of the nerve centres. The success of purgation depends a good deal on the remedies used. To procure a discharge of the indurated and fetid fæces, active and strong purgatives are demanded.

The most effectual tonics are macrotin, caulophyllin, iodide of iron, gold. In cases arising from *irritation*, the grand indication is to remove it, and improve the blood, amend general nutrition, calm the nervous system, and infuse some equilibrium into the muscular system.

Chorea is frequently associated with pregnancy, and is rarely removed until delivery takes place. Some cases are, however, relieved with macrotin, valerianate of zinc, betin, small doses of lobelia, Indian hemp, in full doses, attending to the secretions, and restoring tone to the nervous system. In these cases, I have a liniment, composed of equal parts of aconite, belladonna and chloroform, applied to the spine. From the first application the violence of the movements have ceased. Electricity has a most beneficial effect; so has the cold or shower-bath. The best tonics are iron and phosphorus, with a warm sulphur-bath at least once a day. This is very efficacious. Some cases are benefitted

by subcutaneous injections of gelsemin or atropia; some by suppositories of the like remedies. Counter-irritation to the spine is generally beneficial.

The diet must be nutritious; exercise in the open air should be allowed, and mental excitement guarded against.

A very simple and efficient treatment for chorea, is—first, an active emetic of

R<sub>x</sub>.—Pulv. ipecac, ℥ii;  
Lobelia, ℥i;  
Saleratus, ℥ss,

in a teacup of boiling water, sweetened. Give a wine-glassful every ten minutes, for free vomiting.

After a few hours, give a moderate purgative; then, during the day-time,

R<sub>x</sub>.—Tinct. lobelia, fl. ℥v;  
Tinct. valerian, fl. ℥viii;  
Syr. simplex, fl. ℥iv.

Dose—teaspoonful every two hours.

At bed-time give half a teaspoonful of sudorific drops, (comp. tinct. serpentaria,) in a little sweetened water. When the spasmodic action has subsided, give

R<sub>x</sub>.—Pulv. poplar bark and balmomy, aa ℥ii;  
Golden seed, ℥i;

in half pint of boiling water, in half wine-glass doses every four hours.

Every second evening, hand bathing of whole of the body with warm soda water, following with the dry towel.

In addition to the above, special remedies, to meet particular points in treatment, to equalize the unbalanced nervous system, and remove the morbid impressible condition.

*Belladonna* acts best combined with *maerotin*, when there is agitation and continual movements, unceasing motion of the head and hands.

*Hyosciamus*, combined with *stramonium*, if twitching be excessive.

*Rhus*, alternated with *nux vomica*, where vasculations of the extremities is prominent.

*Iodine and bromine* are most useful where the patient suffers from zigzag movements, and in strumous cases.

*Phosphorus, bromine, cinchona*, if connected with masturbation.

*Quinine, iron, scutellarin, cannabis indica*, meeting indications promptly.

If the case is obstinate, then divide the treatment in a three-fold arrangement—mental, medicinal and mechanical. We must try to plan to have the patient's mind constantly occupied, away from the unnatural character of the movements, so as to overcome the habit. Then we must amuse, and depend upon therapeutics to tone up and bring about an equilibrium in the nervous system, keeping up the most active counter-irritation over the spine, and using electricity if the patient can bear it.



*Faradization* of the dry skin, and electrifying the affected muscles, are the best modes of using electricity in chorea. I have also found the application of the wire brush negative, painting the muscles and back until there is a redness all over, to be excellent, repeating it daily, and keeping up active medicinal treatment.

An excellent mode of using electricity is the primary effect of ten elements of Daniell's battery, applied every other day to the spine, with all the necessary precautions, will aid materially in arousing and equalizing the nervous energy of the system.

Chorea is very frequently associated with rheumatism, and, from numerous data which daily are being brought to light, it is almost approaching an hypothetical fact, that chorea depends upon the poison of rheumatism disarranging the nerve centre; if this can be demonstrated to be so, then such remedies as quinine, macrotin, colchicum, alkalies, &c., will undoubtedly be of utility in chorea.

Hygienic measures are important, not less important than remedies, alkaline bathing, alimentation as nutritious as possible, the avoidance of acids, abundance of exercise in the open air, gymnastic exercise, and everything that tends to bring about systematic movements.

### DELIRIUM TREMENS.

This disease is caused by the excessive and protracted use of alcoholic stimulants. The proximate cause of the malady is the sudden withdrawal of the accustomed stimulant. Alcohol, in any form, is decidedly specific in its action upon the brain, and its long continued use induces an anemic condition of the brain and nervous system. This has been proved from post-mortem examinations, where the hemispherical ganglion have been found pale and bloodless; the venous canals full, the arachnoid thickened, and the brain proper hardened.

This condition gives origin to the following symptoms, when the disease is developed, a wild expression of countenance; eyes fixed intensely and earnestly upon some imaginary object; constant endeavor to grasp imaginary objects; motions sudden and rapid; tremor of the hands and limbs, also of the tongue when protracted; tongue flabby and moist; pulse nearly natural; skin cool, and often covered with perspiration; constant desire to move about; inability to concentrate the mind on ideas for any length of time; inability to sleep; mind wandering and delirious; bowels regular; face bloated; absence of thirst, heat, and other febrile symptoms; general appearance of debility.

Other symptoms of more serious character, as wandering about without apparent object, convulsions, spasms of extremities, contortions of the face, frothing of the mouth, congestion of face and brain. The victim may survive but a few of these attacks; but often continued at intervals for a series of months or years. In some instances insanity follows.

*Treatment.*—This affection depending upon anemia of the nerve centres. Under this condition, it is necessary to give stimulants, in a

moderate degree, brandy with white of egg, or brandy and beef tea should be given so as to maintain a decided influence upon the brain, and as soon as the disease becomes manageable the alcoholic drinks should be gradually discontinued. It is true that xanthoxylin, capsicum, cypripedin, opium, ammonia, and other stimulants are remedial, because their action is partially similar to that of alcohol—sufficient nutritious food should always be given, regularly, at stated intervals.

Delirium and sleeplessness indicate a condition of the nervous system demanding prompt aid. The best remedy that I have used for the relief of this symptom is chlorodyne, in teaspoonful doses as indicated. The formula for this is:

R<sub>y</sub>.—Muriate of morphia, gr. iv;  
 Ext. cannabis indica, gr. viii;  
 Oil peppermint, gtt. v;  
 Oil capsicum, gtt. i;  
 Chloroform, ℥i;  
 Dilute hydrocyanic acid, gtt. xii;  
 Alcohol, glycerine, āā ℥ss.—*M*.

If the disease does not yield, and there is spasmodic twitchings, nux vomica and belladonna should be tried; if there seems to be epileptic paroxysms, stramonium and hyoseiarnus, and if the patient becomes unmanageable, the inhalation of ether or chloroform may be used with great advantage.

To meet the symptoms of spasmodic character—use

R<sub>y</sub>.—Pulv. lobelia, ℥iii;  
 Pulv. ipecac, ℥ii;  
 Pulv. blood-root, ℥i;  
 Soda or saleratus, ℥ss;  
 Boiling water, half a pint.—*M*.

Boil five minutes; strain and give freely as possible; reduce all spasms. If the patient does not soon find rest, give a teaspoonful of comp. tincture serpentaria, with five drops of tinct. gelsemin every thirty minutes.

Besides the anemia of the great nerve centres—the result of a want of nutrition, we have the irritation of the poison alcohol on the system generally, and the vital powers being reduced in their energy, the excretory functions are imperfectly performed; urine is no longer freely secreted; urea, which is a poison itself, accumulating in the blood; the bile also accumulates, and the result is a general poisoning of the system, so that the mode of treatment so highly recommended by some, to wit: a powerful lobelia emetic, to begin with; an alcoholic vapor-bath, and a free action of the bowels and kidneys, is sound and good practice.

The tincture of digitalis, in large doses, has been used here with good results, far exceeding the expectations of its advocates. Cimicifuga will quickly allay nervous irritability, and ward off impending spasm, and proves very valuable in delirium tremens.

I have succeeded well with the hypodermic injection in the treat-

ment, applied on each side of the cervical portion of the spine; the patient will sleep comfortably for ten hours, when it can be repeated. The action of the brain being suspended, secretion is suspended, hence, large doses of medicines are not taken up.

The best prophylactic is lobelia, given with an alkali, in emetic doses, at the beginning of a fit of intemperance, removes the desire for intoxicating drinks. It does not debilitate, but stimulates the whole system, equalizes the circulation and promotes the deranged secretions.

The term *dipsomania* has been used to express that craving for intoxicating drinks, which partakes of a species of monomania. Hard drinking is a degrading vice, and, like other vices, the more it is indulged in, the more difficult to discontinue. The desire is not precisely a disease in itself, but a symptomatic affection of some abnormal cerebral condition.

It is well-known, that the excessive use of alcohol, produces induration of the nervous centres, congestions of the lungs, amyloid and fatty degeneration of the liver, heart and kidneys. But these morbid changes are the consequences, not the cause of the abuse of stimulants; it may be, however, that there may be some predisposition from hereditary causes.

Chronic alcoholism differs from delirium tremens, inasmuch as it is not an acute disturbance of the functions of the nervous system, but a protracted state of general depression, with restlessness. The chief points that demand our attention in treatment, are, to enforce total abstinence, to afford mental occupation and amusement, to administer tonics, such remedies as give tone. Small doses of xanthoxylin, with lupulin and cypripedin—this will induce sleep, remove the tremor of the limbs, the headache, giddiness, and destroy the hallucinations. The chief remedies are xanthoxylin, cinchona, mineral acids, iron, &c.

## DISEASES OF THE EYE.

### DISEASES OF THE EYELIDS.

WOUNDS AND INJURIES OF THE EYELIDS.—Wounds of the eyelids or eyebrows, even if they involve the integument only, and especially if they have extended to the whole thickness of the lid, should be most carefully adjusted in their natural positions, securing them by several fine sutures, in order to avoid the after effects produced by irregular cicatrices. A linen rag, wet with cold water, should be laid on the part; inflammation should be counteracted, and the patient kept at rest till the wounds are healed.

Similar efforts should be made to procure cicatrization, when the lids have been injured by fire, scalding or caustic liquids, or hot metal. If the eyeball has been injured at the same time, and a portion of the conjunctiva of both the eye and the lid has been destroyed, it is almost impossible to prevent cohesion between the raw surfaces of the globe of the lid. This should be prevented by every possible means. Wounds of the forehead are sometimes liable to be followed by amaurosis, in consequence of injury to the frontal nerve.

**CONTUSION AND ECCHYMOsis.**—Blows on the eye are generally followed by a disreputable looking ecchymosis, which is inconvenient enough. Contusions of the lid usually produce ecchymosis. Under ordinary circumstances, the blood in ecchymosis of the eyelids is generally absorbed in from fourteen to twenty-one days; the swelling subsiding, the skin losing its livid color, and, as the absorption goes on, becoming first brown, and then yellow.

In cases of bruises and ecchymosis of the eyelids, we must keep down inflammation, and promote absorption of the effused blood. The first of these objects is attained by cold, evaporating or astringent lotions, and, it may be, by the exhibition of aconite. Various remedies have enjoyed a celebrity in the removal of a black eye.

Of these, perhaps, arnica is the most useful. The bruised root of bryony, and of Solomon's seal, are the next best. The roots are beat into a pulaceous mass in a mortar, and are reapplied every half hour, for three or four hours, or longer if necessary. They cause redness, swelling, and very quickly control the ecchymosis. The external application of cold, the muriate of ammonia, dissolved in vinegar, water and spirits; the liquor ammonia acetatis with rose-water, &c.

But absorption will accomplish the result in a short space of time.

Nature, however, may be aided in her efforts by some of the above means, and if unable to remove it quickly enough, the discoloration may be masked by painting the skin every day, till the natural color is restored. If the contusion is accompanied with an incised or lacerated wound of the forehead, I have derived great benefit in such cases, after cleansing the wound thoroughly, of bringing the parts together, with lead ribbon and collodion, and getting union, if possible, by first intention.

**INFLAMMATION OF THE EYELIDS.**—Inflammation of the eyelids occurs more frequently among children than adults; the upper lid is most frequently affected. The symptoms are purely inflammatory, *redness, swelling, heat, pain.*

The treatment best calculated to put a stop to the inflammation, and prevent injury of the skin and cellular tissue of the eyelid, is free transverse incisions, through the middle of the swelling; after the incisions, warm fomentations. The patient is at the same time to be promptly dealt with, aconite or veratrum, to control the circulation; free purgation with leptandrin and jalapin; free diaphoresis with an infusion of asclepias and sudorific drops, and convalescence established under bark and iron.

**ERYSIPELATOUS INFLAMMATION OF THE EYELIDS.**—In erysipelas, the redness varies from a pale rose tint, inclining to yellow, to a bright scarlet or livid hue, is not circumscribed, disappears on pressure, but soon returns.

The swelling is diffused; pain of a burning character.

Constitutional symptoms are, general uneasiness, rigors, headache, lassitude, nausea, vomiting, tongue coated.

The eyelids are always much affected, especially the upper. The disease may arise in the lids, and be confined to them, sometimes one eye only is affected.



Besides lacrymation, there is increased Meibomian and conjunctival secretion, which is in the form of a puro-mucous matter, which collects over night along the border of the lids; and at the inner canthus.

Erysipelas of the eyelids ends in resolution, in which case the redness and swelling subsides, and scales consisting of exfoliated epidermus and dried exudation, are thrown from the surface.

*General Treatment.*—The very best treatment consists in the exhibition of an emetic of the C. tinct. lobelia, and if it does not act well, repeat it in combination with bi-carbonate of soda, following this with the C. podophyllin pill, or some active cathartic. The alkaline, or vapor-bath must not be overlooked. Then follow with iron and quinine nourishment and stimulants, following with C. tinct. bark, or tamarac.

As a local application, the sulphite of soda, 10 grs. to 1 oz. water; vinegar and acetate of lead, or equal parts of lime-water and olive oil, keeping the parts constantly wet with either. This treatment will invariably be found successful.

**FURUNCLE OF THE EYELIDS.**—Boils are sometimes met with upon the lid, or over the lachrymal sac, causing œdema of the surrounding parts, and severe burning pain. They often give rise to febrile disturbance. They may often be arrested in their incipient stage by constant cold applications, or by painting it over with tinct. iodine, to which iodide of potassium has been added, or the application of the vegetable caustic; warm fomentations and poultices favor the process, and give relief to the pain. An anodyne should be given at night, so as to give the patient comfortable sleep. The symptoms are relieved at once when the little sloughy core has been expelled, either by nature or by a crucial incision. In these cases, the powers of the system are low, and tonics and nourishing diet should be resorted to.

Carbuncle and malignant pustule are very rarely met with in the eyelids. They require to be treated on general principles.

**MALIGNANT PUSTULE** is a gangrenous inflammation of the skin and cellular tissues, most frequently by contagion.

The danger is, sloughing of the lid and structures of the eye; the constitutional symptoms are severe, and the disease is often fatal.

The principal points in treatment are, the destruction of the pustule with bromine or caustic potash; begin treatment with an emetic of the C. powder of lobelia, following with an alcoholic vapor-bath; active purgation by podophyllin and jalapin, following this with large doses of the sulphite of soda in an infusion of bark, alternating with the C. stillingia alt., or gold. After subduing the active symptoms, and giving the above a fair trial, bark and iron will answer for the convalescing period.

**CARCINOMA OF THE EYELIDS.**—The more malignant forms of cancer seldom originate in the eyelids. Epithelial cancer is more common, or, as we more frequently see it, in the form of scirrroid callosity, a hard, tuberculated, warty-like degeneration, of the whole thickness of the eyelid; if not irritated, it may remain stationary for years.

Cancer commences more commonly in the lower eyelid than in the upper; usually a small indurated tubercle at the edge or angle of the eyelid is perceived, and this formation is rapidly followed by others.

This stage of induration may remain for an indefinite time, and is succeeded by ulceration. The ulcer is smooth, destitute of granulations; the discharge is not unhealthy looking. The ulceration may be arrested for a time, and is very apt to appear, unless proper constitutional treatment is kept up. In some cases the ulceration may eat away the eyelids and adjacent parts. In the progress of the disease, the eyeball may be destroyed by ulceration and bursting of the cornea, with evacuation of the humors. Very little suffering, in general, attends the stage of ulceration, but when the nerves are exposed, or when the eyeball bursts, there is great pain.

From syphilitic ulceration of the eyelids, cancerous ulceration may be distinguished by the character of the pain, (lancinating,) by the slowness of its progress, by the history of the case, by the cancerous diathesis.

*Treatment.*—Cancer being a degeneration or perversion of the vitality of the blood, an impaired nutrition. Constitutional remedies are of great value—we must have an active state of the secretions; we must remove the diathesis if possible.

Attention to the skin—bathing is quite important—as a purgative, podophyllin and euonymin, or leptandrin; good diet, thorough hygiene. An alterative course must never be omitted. The C. syr. stillingia, with iodide potassium and sheep laurel, or fluid extract corydalis, muriate of gold, syrup of frostwort, or the C. syr. celastrus, or an infusion of the corydalis and dock, alternated with bark, iron and mineral acids, will have a powerful influence in removing constitutional taint, and are good remedies here; some of these articles should be given and alternated with each other; when the system becomes habituated to one article, it should be discontinued for a time.

In the treatment of cancer of the eyelids, diuretics and diaphoretics should not be overlooked; the function of the kidneys and skin should be stimulated, and everything done to promote the formation of healthy blood.

The removal of the cancer should not be attempted unless the case imperatively demands it, until the patient has been subject to a two or three months' alterative course; then its removal by the caustic potash, if the parts permit of its use, if not, the sulphate of zinc and sanguinarin; and if this is not admissable, the knife.

The after-treatment will consist in a rigid, energetic, alterative course for months after removal, keeping up active treatment with such agents as the sulphites, the chloride of gold and soda, nitro-muriatic acid, baths, and healing the sore with black salve, ointment of the iodide of iron, or lotions of permanganate of potash and zinc, or sprinkling on carbonate of iron or chloride of gold.

Anodyne remedies are useful, such as cicutia, not only in palliating symptoms, but in retarding the progress of the disease.

**SYPHILITIC ULCERATION OF THE EYELIDS.**—Syphilitic ulceration of the eyelids are generally secondary, occurring generally after the sixth month; sometimes affecting the eyelids, either at their border, or on their external or internal surface; in the one case, going on to destroy the whole thickness of the lid, in the other case, producing a deep and

foul excoavation. These sores are generally attended by other secondary symptoms, and the timely employment of anti-syphilitic remedies have a marked effect on the condition of the lids.

The treatment, from which the best results is derived, consists in regulating the various secretions, in the exhibition of a vapor, sulphur or iodine-bath, twice weekly; in administering C. syr. stillingia with irisin and corydalis, alternating with twenty-five drops of the following:

R̄.—Tinet. kalmia, vel;  
Con. tinet. phytolæca, de;  
Iodide sodium, āā ʒi.—M.

If there is intolerance with this, Logul's solution of iodine. As a local application, glyeerine, baptisin and hamamelin, glyeerine and sanguinarin, or glyeerine, morphia, hydrastin and rhusin; for a lotion or wash, a solution of borax and tinct. myrrh, or permanganate of potash. If the affection occurs in children, half a grain of phytolæcin, irisin and corydalin, thrice daily, and brushing the lids with any of the above, will speedily effect a cure.

In children, the con. stillingia alt., in one, two or more drop doses in syrup or water is excellent.

EXCRESCENCES OF THE EYELIDS.—It is highly important not to regard as malignant mere warty tumor, or those temporary enlargements frequently seen at the edge of the lid, where some previous inflammation of a Meibomian gland has occurred. These latter disappear if touched with the caustic soda. Warts, or horny excrescences, may be nipped off, or touched with caustic, or a strong decoction of tormentilla root, kept constantly applied.

ABNORMAL ADHESION OF THE EYELIDS.—Occasionally cases of congenital union of the lids are met with; occurring in some cases as a simple phymosis—the lids opening only a little less extensively than in the natural condition; or it may amount to complete adhesion of the entire edges of the lids. In the former case, the child has an unpleasant aspect; the eyes seem small; the bridge of the nose twice its usual breadth. It is sometimes unable to see directly before it without holding the head back, and making strong efforts to raise the lid.

In the treatment, the lids may be separated towards the inner angle; but to avoid reunion, it is necessary to bring the skin and conjunctiva of the upper, and the same surfaces of the lower lid together, by sutures, to prevent apposition and reunion of the original cut surfaces.

Complete, or nearly complete, connection of the two lids is almost always accompanied by imperfect development of the globe itself, and a want of visual capacity.

An operation would be inexpedient. If adhesion of the edges has occurred, they should be separated, and the skin and lining of each lid united by sutures, if there is any danger of reunion.

SEBACEOUS OR ENCYSTED TUMORS.—Small sebaceous or encysted tumors are very common in the lids, occurring in persons of every variety of constitution, but more frequently met with in anemic females.

They are often numerous, usually developed between the tarsal cartilage and the skin, projecting outwards to the size of a small marble. They sometimes discharge their contents by suppuration; they rarely disappear spontaneously. More frequently they increase in size, which causes a slight deformity and discomfort from pressure upon the eye.

In some cases their removal can be effected by the application of stimulating lotions; but their removal by the knife is the best treatment. No part of the cyst is to be left.

In children, we frequently find small, roundish, white masses developed in the follicles of the lids or neighboring parts of the face.

When they attain some size, a minute orifice forms at their centre, and permits the discharge of a milky exudation.

Opening these masses with a lancet, and pressing out their contents, and touching the interior of the sac with caustic, is good treatment. Fatty or fibrous tumors, containing also sebaceous matter, are to be found about the lids, adhering to the bone. They should be removed.

**HORDEOLUM OR STYE.**—This disease, named from its fancied resemblance to a grain of barley, consists in a red, hard swelling at the edge of the lid, accompanied by considerable burning pain and febrile disturbance.

It is of a furuncular character; when the abscess bursts, some thick matter, with a small slough, is discharged; the swelling then subsides, and the part heals. It has its seat at the margin of the eyelid.

*Causes.*—Those most subject to stye are the scrofulous. Derangement of the digestive organs is a common exciting cause.

*Treatment.*—At the very commencement, the disease may often be arrested by the exhibition of an emetic of the C. powder of lobelia, followed by a C. podophyllin pill; cold applications to the eye, or by touching it with caustic. If, however, the disease has already made some progress, warm applications, as bread and milk poultice. As a general rule, it is better to allow the abscess to burst of itself; but when it is mature, and occasions much uneasiness, relief will be obtained from puncturing it.

To prevent the recurrence of the disease, attention must be directed to the general health; to its maintenance, and to use local means to change the condition of the follicles and the Meibomian glands.

For this purpose, the citrine or brown ointment is excellent; a piece about the size of the head of a pin, melted, and applied at bed-time.

**INFLAMMATION OF THE EDGES OF THE EYELIDS, OR OPHTHALMIA TARSI.**—The edges of the eyelids are subject to a peculiar inflammation, of a chronic character, of which there are two principal forms, viz.: catarrhal and scrofulous. Both forms occur in patients of all ages, and principally affects the delicate integument of the tarsal border, and the adjoining conjunctiva and skin of the eyelid. The symptoms and treatment are nearly analogous.

*Symptoms.*—The edge of the eyelids are red, swollen; the conjunctiva red and villous, the border more or less excoriated, the eyelashes are loaded with Meibomian secretion, lids glued together at night; in the scrofulous form, incrustations are heavy, with small



vesicles, or pustules, or ulcers are discovered at the root of the hair; itching, smarting heat, at the borders and angles of the eyelids, are most marked, and the sensation of foreign particles in the eye; intolerance of light.

When the complaint has been of long continuance, many of the eyelashes fall out, some misdirected; not unfrequently inversion or eversion of the borders of the lids. In more advanced stages, the eyelids are thickened, nodulated at their borders from hypertrophy of the tarsal cartilage and enlargement of the glandular structures. In old, neglected cases, the conjunctival surface acquires a sarcomatous appearance. Ophthalmia tarsi is essentially a chronic affection, with but little tendency to spontaneous recovery, and is sometimes very difficult to cure; and if the Meibomian glands are closed, the edge of the lid has a shining, glistening appearance.

*Causes.*—The disease may be a sequel of a common catarrhal ophthalmia,—confined at first to the tarsus, affecting those whose occupation exposes them to cold, damp, bad air, nauseous vapors, especially if they have been depressed by intemperance, or if the constitution be weakly, or a bad state of general health; strumous diathesis, added to neglect and bad treatment, tend to render it inveterate.

*Prognosis.*—The disease is easily arrested; but, when neglected, leads to very grave changes.

*Treatment.*—The strumous diathesis is the strongest predisposing cause; and, as there is invariably a fault or defect in the constitution, it is very important to put the patient upon an alterative and tonic course of treatment. The compound tincture of corydalis, or *C. syr. celastrus*, or stillingin, with iodide of potassium or sodium, may be given in appropriate doses. Some preparation of iron answers well to alternate with. Scarcely any disease is more readily controlled if the treatment is correct. The diet should be generous, the patient should be warmly clothed and protected from all vicissitudes of the weather. If the strumous diathesis be very strong, the iodide of iron and cod-liver oil are of utility.

Very much also depends upon local treatment, upon keeping the eyes clean, removing the tenacious secretion, without causing pain and irritation. Hence, the eyes should be frequently bathed during the day with milk and water, or some infusion, as a decoction of cornus, hydrastis, witch hazel, keeping them as entirely free from the secretion as possible, and thus assisting in soothing the irritability of the parts.

At bed-time, glycerine, either pure or medicated, or some ointment, should be brushed about the roots of the eyelashes and orifices of the Meibomian glands.

Various excellent formulas are in use, such as glycerine and rose water, equal parts; the mild zinc or ophthalmic ointment; or, instead of these, a mild collyrium of sulphate of zinc, or borax, or nitrous ether and vinegar in water.

If ulceration exists beneath the crusts, the cure may be hastened by touching them with the nitrate of silver, and the faulty cilia may be removed. In the application of the decoctions named, we can accom-

plish our purpose best by the use of a soft sponge, kept constantly applied to the eye, constantly moist with the remedy.

Continued counter-irritation, by the irritating plaster, behind the ears and nape of the neck, must not be neglected.

The lye-bath or sea-water is excellent. The vapor-bath is also useful. If neither can be procured, let a tepid pediluvium be employed every night at bed-time.

Pure air, regular exercise. The stomach, the liver and bowels should be kept in the best possible order. Sleep is of very great consequence; indeed, it would seem that hardly anything is of any avail, unless the patient have sleep, and keep the eyes off minute objects.

If the disease has caused incurable alterations, giving a shining red margin to the lids, and producing blar-eyedness, we can only palliate the condition and remove existing inflammation, by fomentations during the day, and the use of some oleaginous substances at night, and the exhibition of alteratives; tonics, as bark and iron.

CRUSTA LACTEA.—This affection not unfrequently spreads to the skin of the eyelids. Infants are almost exclusively the subjects of this disease. Careful ablution of the lids, with some mild and tepid fluid, as milk and water, solution of hydrastis, blood-root, zinc, &c., and alteratives, such as irisin, menispermic cathartics, and such tonics as bark.

CALLOSITY OF THE EYELIDS.—This is frequently a result of neglected ophthalmia tarsi, and is best treated by the internal use of iodine; and locally, by the ext. of phytolacca de.

NÆVUS MATERNUS, AND ANEURISM BY ANASTOMOSIS OF THE EYELIDS.—This affection occurs not unfrequently on the eyelids. It is sometimes so slight that there appears but a collection of dilated blood-vessels; in other cases, the nævus is prominent, of a deep red color, smooth or granulated.

The various methods of treating nævi, or aneurism, by anastomosis, which have been adopted, are—pressure, actual cautery, vaccination, caustics, injections, seton, ligature, excision, and sometimes ligature of the common carotid. I have succeeded well with collodion and tannic acid, locally; our choice of treatment should be regulated by the situation of the tumor, its size and its degree of activity.

ŒDEMA OF THE EYELIDS.—The looseness of the cellular membrane of the eyelids, and the absence of adipose tissue, permit them to readily become œdematous.

This affection may depend either on local or on general causes, and on the removal of the cause, we have a disappearance of the swelling.

NEURALGIA.—The branches of the first and second divisions of the fifth pair of nerves, distributed to the eye, eyelids, and supra-orbital region, are more frequently the seat of severe pain than any other nerve of the body.

*Treatment.*—The best treatment consists in regulating the state of the patient's stomach and bowels. An emetic and purgative, alkaline-bath, and alterative course. The special remedies calculated to afford relief, are the valerianate of iron and quinine, nux vomica, belladonna,

gelsemin and scutellarin, ext. stramonium, locally, electricity, by faradization, subcutaneous injections of the atropia or strychnine; counter-irritation.

Among the old school, arsenic, iodide of potassium, &c., are esteemed.

In connection with neuralgia, we may have various nervous affections, such as hemicrania, anæsthesia of the eyelids.

The latter is the most common. In this condition, the eyelids, both on their cutaneous and conjunctival surface, lose entirely their sensibility to external impressions.

The treatment is the same as for neuralgia.

**TWITCHING OF THE EYELIDS.**—Tremor, or twitching of the eyelids, which the patient is unable to control or prevent. Agitation of mind or body aggravates this condition.

In the treatment of such cases, it will be found that the digestive organs are deranged, so that the essential part of treatment consists in the use of laxatives, alteratives and tonic medicines.

As the profession at large are so unsuccessful with this complaint, I will give a synopsis of the treatment with which I have been so successful. First, an emetic of the C. powder of lobelia, then a diaphoretic powder, opening the bowels with podophyllin, leptandrin, and Indian hemp. I have derived great advantages from a combination of macrotin, scutellarin, gelsemin, cypripedin and nux vomica. If these, in twenty-four hours, do not succeed, phosphoric acid and valerianate of zinc, quinine, iron, rhus rudicans, belladonna, are useful, and thorough hygiene, subcutaneous injections.

**PALSY OF THE MUSCLES OF THE EYEBROWS.**—Palsy almost always depends on some affection of the nerves or of the brain.

**Treatment.**—We must be guided by the cause; generally, however, dry cupping to the nape of the neck, followed with the irritating plaster; an active cathartic of podophyllin and leptandrin; an active condition of the skin and kidneys, with acetate of potash and aselepin; then following with nux, cypripedin and galvanism. If the case does not yield, then resort to C. tincture corydalis, with iodide of potassium, or the C. syr. celastrus, with the bromide of potassium or iodide of ammonium. Continued suppuration with the irritating plaster, following this course with tonics, such as nux vomica, quinine and hydrastis; the hypophosphites, or some preparation of phosphorus, alternated with Indian hemp and nux.

The hypodermic injection of a solution of strychnine along the course of the portio dura is magical in its results.

**LAGOPHTHALMOS.**—The organic shortening or retraction of the eyelids, producing this affection, usually depends on the contraction attendant on cicatrization of a burn or other injury, or on the skin of the eyelid being drawn into adhesion with the edge of the orbit, in consequence of carious ulceration. It can only be remedied by operation.

**PTOSIS, OR FALLING DOWN OF THE UPPER EYELID.**—Inability to raise the upper may depend upon a variety of causes. We may have *ptosis* from paralysis of the nerve of the third pair, from injury of the

levator palpebræ muscles, from extension and relaxation of the skin, or hypertrophy of the whole substance of the lid, and it may be congenital. Temporary loss of power often follows inflammation of the lid, but the normal state is regained usually as the patient recovers strength.

Ptosis is often the precursor of apoplexy, and is attended with headache, giddiness, and other signs of congestion of the brain.

Sometimes an attendant on organic cerebral disease; and is attended with dimness of sight, sluggish, dilated pupil, and more or less strabismus.

If it occurs without any assignable cause, and persists, notwithstanding the employment of every measure calculated to improve the health, a portion or an elliptical fold of the integument should be snipped out from the eyebrow, so that the lid may be brought in contact with the occipito-frontalis muscle, and be elevated by it. When the levator muscle has but slight action, it is sometimes necessary to take away a much broader fold of the skin, and to make the flap extend nearly to the eyebrow, so that the occipito-frontalis may have full play. Cases have also been cured by the local application of tinct. iodine, hypodermic injection of strychnine, and by the judicious use of the ext. nux vomica, alternated with the Calabar bean.

**EPICANTHUS.**—This term has been applied to a congenital peculiarity, which consists of a fold of skin extending from the side of the root of the nose, over the inner canthus of the eye. The free edge of the fold is crescentic, and its extremities are lost in the skin of the upper and lower eyelids. The operation for the relief of this affection consists in the vertical excision of an elliptical piece of skin from over the root of the nose, on a level with the epicanthus, and then bringing the wound together with two pins, same as in hair-lip, and twisting lead wire repeatedly over the pins, approximating at the edges. Epicanthus has been imagined to dispose to squinting, hence the reason for operating.

**TRICHIASIS AND DISTRICHIASIS.**—Trichiasis is a growing in of the eyelashes against the eyeball, the border of the eyelid remaining in its proper position, which circumstance constitutes the distinction between trichiasis and ectropion.

Distichiasis is merely a variety of trichiasis—a double row of eyelashes, one of which grows inwards.

The misplaced hairs must be perpetually plucked out; or, if that is not sufficient, their bulbs must be extirpated with a fine knife; or each bulb may be punctured, and destroyed, by introducing a fine probe dipped in melted nitrate of silver.

**ECTROPION, OR EVERSION OF THE EYELIDS.**—In ectropion, the eyelid is drawn away from the eyeball, its conjunctival surface turned out, and its ciliary margin displaced. It usually occurs from external traction—the edge of the lid being drawn outwards by a cicatrix of the skin, resulting from a burn or injury; or from paralysis of the orbicularis; or from causes acting within and pushing out the lid.

However caused or produced, the eyeball, being thus deprived of the protection of the eyelid, is exposed to constant irritation, by which a



chronic conjunctivitis is kept up, weakening the eye, and giving rise to specks and vascularity of the cornea; in bad cases, ulceration of the cornea, from want of protection against atmospheric changes and irritating foreign bodies. When displacement has existed for a long time, the puncta lachrymalia are frequently closed; but their situation can always be made out, and they are readily re-opened by means of one of Anel's probes.

When resulting from contraction of a cicatrix, its division is not attended with good results, unless there is provision made for supplying the place of the loss of substance by other material, taken from the neighboring parts, to fill the vacuum.

If it occurs in consequence of paralysis, the remedies recommended under the head of paralysis are indicated.

The largest proportion of cases of ectropion are caused by something acting within the lid. The swelling of the conjunctiva is sometimes so great in some forms of ophthalmia, that the tarsal cartilage is completely everted, and, if this eversion is not at once rectified, it may assume a chronic form, the conjunctiva being intensely thickened.

The practice has been to remedy this by excision of a portion of the conjunctiva, to permit the lid to resume its natural position, as illustrated in *Fig. 49*, which exhibits the disease, the elliptical portion

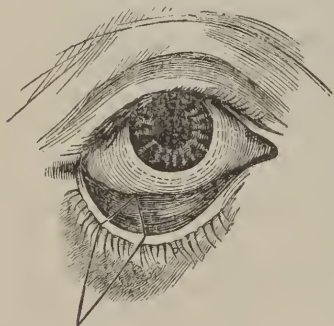


Fig. 49.

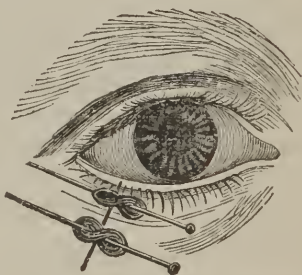


Fig. 50, the insertion of the pins, &c.

to be excised; *Fig. 50*, the mode of treatment when operated on. As a rule, this is not good practice to resort to indiscriminately. The use of astringents, with such agents as hydrastin, rhusin, hamamelin, with a weak collyrium of the sulphate or acetate of zinc, dropped into the eye three times daily, have been successful, in my hands, of effecting good cures.

If, after a fair trial of the astringent treatment, excision be resorted to, great care must be exercised to remove but a small portion, as if the operation be extensive, entropium may result.

*Entropion.*—Inversion of the edge of the eyelids, may be caused by contraction of the ciliary margin of the lid, as after protracted ophthalmia tarsi, or it may be produced by thickening of the conjunctiva at the line of its reflection from the lid to the globe; and in old per-

sons, in whom it is common, on account of the skin becoming flaccid, and some slight irritation giving rise to frequent contraction of the orbicularis.

It may also be caused by long-continued inflammation of the glands at the edge of the lids.

If it exists for any length of time, it will cause other morbid alterations, from the friction of the inverted cilia upon the eyeball.

*Treatment.*—If due to flaccidity of the integuments, entropion may be remedied in various ways, by keeping the skin of the lid covered with collodion and tannic acid, five to ten grains to the ounce; the same result may be obtained by narrow strips of adhesive plaster, firmly stuck upon the lid, and then drawn down and fastened upon the cheek. When these means are insufficient, caustic soda, or nitric acid may be tried. By means of a pencil of wood, the acid is to be rubbed over an oval portion of the integuments of a length corresponding to the inversion, and about a quarter of an inch broad in the middle. The caustic must be applied until a sufficient contraction of the skin is produced, so as to bring the eyelid into its position. Cauterization is best adapted for slight and recent cases, and is not admissible when the skin is superabundant.

When these means are insufficient, removal of a fold of skin of sufficient width, with a portion of the orbicularis beneath, is sure to be effectual.

The edges of the wound are to be brought together with silver or lead wire sutures; and the patient is usually well in a few days.

*Pediculi.*—These loathsome insects sometimes lodge about the roots of the eyelashes, and produce an obstinate itching. They are easily killed by an ointment made of phytolacin; they should not be mistaken for crusts of dried mucus.

## DISEASES OF THE LACHRYMAL APPARATUS.

The lachrymal gland is very rarely the seat of the disease. It is occasionally subject to acute and chronic inflammation. It is also liable to morbid growths, for which extirpation may be necessary. The secretion of the lachrymal gland may be suppressed, or, on the contrary, it may be poured out in too great abundance.

These disordered states of the lachrymal secretion, it is well known, are frequently the result of mental affection. Suppression of the secretion is more common in old age; excess of secretion in youth.

XEROPHTHALMIA signifies a dryness of the eye, from deficiency of the tears, or rather of the mucous secretion of the conjunctiva; this latter, I deem the chief cause, depending on a cuticular state of conjunctiva.

If the cause be sympathetic, purgatives, tonics, may be used, but if not, they do little good. Bathing the eye frequently with tepid water, by means of an eye-cup or eye-fountain, serves to relax the parts, and disposes them to resume their normal functions. A very favorable plan of treatment consists in dropping three or four drops of liquor potassæ, to two ounces of tepid water, filling about two-thirds of an eye-

glass. Apply to the eye for a minute or two. It gives no pain, brings away all morbid excretions from the eye and its lids, and instantly removes the cloud, as the patient calls it, from the sight. The frequent application is requisite, as well as a gradual increase of strength; it is a stimulus to excite the natural secretion of tears as well as to remove the cuticular state of the conjunctiva. I have also found Richardson's spray of great value here, throwing into the eye a spray of chlorate of potassa, four grains to the ounce of water.

**EPIPHORA.**—This signifies a redundant or superabundant secretion of tears, and most commonly presents itself as a symptom of irritation of the conjunctiva. This irritation may be due to various causes, inflammation, the action of chemical or mechanical injuries, cold winds, vapors, foreign particles, inverted eyelashes. This affection must be distinguished from the *stillicidium lacrymarum*, another form of watery eye, arising from a morbid state or obstruction, in the channels that convey them to the nose.

*In the treatment*, if it depends on the scrofulous diathesis, it should be treated with alteratives, tonics, thorough hygiene, good diet, plenty of fresh air. An occasional emetic, I have always found beneficial.

On the removal of the cause, it usually disappears. If from mechanical or chemical bodies, they must be removed, and on their removal, the eye-bath or spray, with either a weak solution of opium, or belladonna, or stramonium. Counter-irritation on the temple is useful.

**CLOSURE OF THE PUNCTA LACHRYMALIA.**—This is often congenial, but it is more frequently a consequence of inflammation of the lachrymal sac and its appendages. When a consequence of inflammation, the openings must be first restored, by a fine gold pin, and then one of Anel's probes should be frequently passed through them into the sac. The probe must be introduced, first perpendicularly upwards, for the superior punctum, and downwards for the inferior; then horizontally inwards, towards the nose.

**OBSTRUCTION OF THE NASAL DUCT** is a consequence of thickening of the mucous membrane that lines it, and is not at all an uncommon affection among young scrofulous persons. The patient complains of weakness of one eye, which is perpetually watering; and of dryness of the corresponding nostril. The lachrymal sac, distended with tears, forms a small tumor by the side of the nose, from which tears can be squeezed upwards through the puncta, or downwards into the nose, if the obstruction is not complete.

**INFLAMMATION OF THE LACHRYMAL GLAND.**—Inflammation of the lachrymal gland is not of common occurrence, although we now and then meet with cases of both acute and chronic inflammation. Both forms are distinguished by tenderness of the sac, great redness, pain, swelling, tenderness at the edge of the nose, implicating the eye; fever, headache.

*Treatment.*—In the acute form; purgatives, rest, cooling lotions, and a free use of our arterial sedatives, if the fever runs high. If the symptoms are indicative of the formation of pus, a warm poultice of



chamomile flowers, or an elm poultice, and, when matter has fairly formed, it must be evacuated.

If the case be of a chronic strumous character, it should be treated with alteratives, nourishing food, tonics, fresh air, and iodide of iron.

**FISTULA LACHRYMALIS.**—This is a fistulous aperture of the inner corner of the eye, communicating with the lachrymal sac. It is a consequence of acute or chronic inflammation of the lachrymal sac. It may begin with an obstruction of the nasal duct, with a perpetual watering from the eye; this may be followed by inflammation, which gives rise to abscess, and this, bursting, causes the fistulous aperture, which is generally crowded by fungous granulations. If the retention of the tears in the sac causes a constant irritability of the eye, or if there is a fistulous orifice between the sac and the cheek, measures should be resorted to to restore the obstructed duct. There are various methods of rectifying this difficulty, such as the insertion of a wire and making it red hot with galvanism. The insertion of bougies armed with caustic, injections, &c., the insertion of tents. But all these are uncertain, so that a radical cure should be attempted in all cases.

In performing the operation, place the patient in a sitting posture, and stand behind him. Have a small sharp-pointed scalpel, and holding it perpendicularly to (*Fig. 51*) the eyebrows, direct the point to the inferior margin of the internal tendon of the eyelids, which can be plainly seen by drawing both lids outward. In this place and direction, press the point of your instrument directly downward, until a flow of mucus and tears show that it has entered the lachrymal sac. As you then raise it out, make a slight outward cut, so as to enlarge the opening. A *probe*, slightly curving forward and inward, is then to be introduced, and pushed through when it meets with obstruction. A few drops of blood from the nostril will show when it has entered that cavity; sometimes there will be quite a stream. Another sign is, that of withdrawing the probe, the patient can blow wind out at the eye. The *tube*, according to preference, is then to be inserted; and the wound healed sooner or later, as the case or operator's judgment indicates.

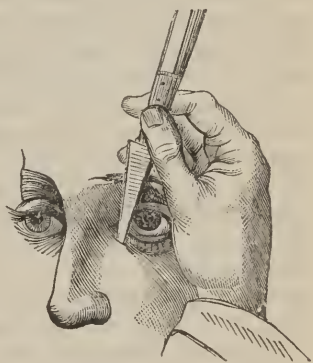


Fig. 51.

Instead of the ordinary style I prefer a similar tube, with an angular grooved head, made of the finest gold.

**CHRONIC ENLARGEMENT OF THE LACHRYMAL GLAND.**—The lachrymal, like all other glands of similar structure, is subject to slow enlargement, as well as to become the seat of encysted or other tumors, or calcareous deposits.



## DISEASES OF THE CONJUNCTIVA.

**FOREIGN BODIES.**—The slight and transient irritation of the conjunctiva, caused by the pressure of a foreign body, scarcely deserves to be regarded as one of its diseases; yet it is a source of annoyance frequently demanding relief, and, if improperly treated, may lead to serious irreparable consequences.

The presence of a foreign body is characterized by slight injection of the eye, increased lachrymation, a sensation of something in the eye, sensitiveness to light. If a foreign body is present, its removal is to be at once effected. The largest proportion of such bodies are particles of sand, cinders, minute particles of iron, lime, &c. If small, they are often washed away with the tears, or become lodged beneath the upper lid and near its edge.

The eversion of the lid and removal of the offending substance with a probe, or small brush, or point of a pencil, is usually promptly done. In most cases the patient is quickly relieved from the sensation of scratching, caused by the body, but the feeling of roughness that remains is due to the injected vessels, which quickly disappear if the eye is left to itself, or bathed a few times with tepid milk and water. Where particles of iron have become imbedded in the cornea, they are usually detected with very little difficulty; but, if it happens to be near the centre, in front of the black field of the pupil, they may escape notice. When it has been driven with force into the cornea, it is very readily removed by a magnet, if one is at hand, if not, by forceps, or the point of a cataract needle should be carefully passed under it, so as to lift it out. To remove lime or mortar, the eye should be well syringed or sponged with weak vinegar and water, with oil, or glycerine, or pure water, if nothing else can be had.

Gunpowder, exploded near the eye, fixes in the conjunctiva, and in the cornea, and must be carefully picked out with the point of a cataract needle.

All foreign bodies give rise to more or less inflammation, which must be obviated by the usual means.

Exposure, draughts of air, sudden changes of temperature, not sufficiently prolonged or violent in their action, will bring on a similar form of inflammation as that produced by a foreign body.

These cases do well, treated by mild remedies, but are aggravated by strong stimulants or astringents. Lotions, with tepid milk and water, rose-water, infusion of tea, decoctions of poppies or stramonium, or hydrastin.

**COMMON ACUTE OPHTHALMIA.**—This consists simply in an inflammation of the conjunctiva.

*Symptoms.*—Smarting, heat, stiffness and dryness of the eye, with a sensation as if dust had got into it, the conjunctiva of a bright scarlet redness, the redness superficial, so that the enlarged vessels can be moved by pulling the eyelids; slight intolerance of light and flow of tears on exposure of the eye, and more or less headache and febrile disturbance.

*Causes.*—Slight local irritation, disorder of the digestive organs,

cold, damp, exposure. Catarrhal ophthalmia is a variety of this inflammation, caused by cold or damp, and attended with a thin mucus discharge, which, in severe cases, becomes thick, purulent and contagious.

*Prognosis.*—Scarcely any disease is more amenable to treatment, and we may be almost certain of perfect restoration of the normal condition, if the disease has not already produced irreparable changes.

*Treatment.*—In consequence of the peculiarity of the structures and functions of the eye, its usefulness is apt to be interfered with by any form of inflammation. Hence, the treatment must be pushed with activity. In the treatment, the first points to be attended to, after the removal of the exciting cause, are the protection of the eyes from everything which can cause or keep up irritation, such as using or exposing them to strong light, and the avoidance of everything calculated to operate injuriously on the system in general, such as exposure, exertion, errors of diet.

If it is connected with disease of some other organ, or with some diathesis or disease, the treatment ought not to be delayed until the removal of the disease with which it is sympathetic, or of which it is symptomatic.

It is true that the local disease cannot always be cured or alleviated until the removal of the general disease, still, our efforts, in all cases, should be to relieve the eyes as quickly as possible.

*The treatment of acute ophthalmia* is divided into general and local, and the great indication is, to reduce the inflammation as quickly as possible. For this purpose, I resort, in all cases, to a stimulating emetic of the C. powder of lobelia. The powers of this are strikingly displayed; considerable advantage is obtained, and it is the first correct stepping-stone to the after-treatment.

Then put the patient upon aconite, with an infusion of asclepias, thereby controlling and equalizing the circulation thoroughly.

Then an active cathartic of podophyllin, colocynthin and leptandrin.

An alcoholic vapor-bath for a start, and then sponging the skin thrice, daily, with an alkaline wash, is excellent. Some cases get along well with this treatment; but if the health is feeble, we might, with advantage, associate with these bark and hydrastis, or the wine bitters, or other tonics, to meet pressing indications.

Tonics are of great use, tending, in all cases, to promote convalescence.

With reference to the local treatment, various collyria are recommended, but, let me say, they must be all of a soothing character, such as a fomentation of henbane or poppies, or a drachm of borax to eight ounces of water, or the pith of sassafras in rose-water, or a poultice of slippery elm bark, or elm and hydrastis; or an excellent poultice is the leaves of scrofularia Marylandica—keeping any of the above constantly applied.

The patient's apartment must, in all cases, be darkened; diet light and easily digested. In addition to these means, some agent calculated to oppose the tendency to closure of the pupil, and to aid in

reducing the inflammation, should be dropped into the eye every three hours. A favorite formula of mine consists—

R<sub>y</sub>.—Atropia, gr. vi;  
Tinct. gelsemin, ʒi;  
Water, ʒii.

Other formulas are in use by eminent oculists, as nitrate of silver, gr. iii; to water, ʒi; one drop, applied to the eye every three hours. Sulphate of zinc, gr. iii, to an ounce of water. Infusion of rose or raspberry leaves.

There is no mistake more common than to treat common inflammation of the eye by depleting remedies.

CHRONIC INFLAMMATION OF THE CONJUNCTIVA—This may be a sequel of the acute, or may be caused by local irritation, such as inverted eyelashes, or by some derangement of the general health.

*Treatment.*—All local sources of irritation should be removed, astringent and anodyne lotions applied. The emunctories of the body should be unlocked; the skin and bowels should be rigidly seen to. The edges of the lids should be touched every night with an ointment of phytolacin; the eyes should be bathed two or three times daily, and counter-irritation should be resorted to. The general health must be amended by tonics, alteratives, change of air, good diet.

ERUPTIVE CONJUNCTIVITIS—Phlyctenular, or pustular ophthalmia, is frequently met with in children near the age of puberty, and in females whose menstruation is irregular.

*Treatment.*—Any abnormal state of the system must be rectified. An emetic may be given at the start, followed with the C. podophyllin pill. Then the patient might be placed on some preparation of bark and iron, and this should be alternated with an alterative, as the C. syr. stillingia, or C. tinct. corydalis, with iodide potassium.

If the case does not progress rapidly, a repetition of the emetic, with the bitter tonics and iron, alternated with the hypophosphates.

Locally, nothing more active than weak solutions of hydrastin, rhusin, hamamelin, borax, alum, sulphate of zinc, sassafras pith, althæ root. If it does not yield quickly, steaming the eye with medicated water, say with a solution of opium, belladonna, and then dropping in the atropia and gelsemin lotion. If the case is very severe, hot fomentations; and, if it does not yield readily, painting around the eye and eyelid with tinct. iodine will be advantageous.

PURULENT OPHTHALMIA.—Purulent conjunctivitis is the most violent form of inflammation of the conjunctiva, and is attended with a thick, purulent discharge, which supervenes in from twenty-four to forty-eight hours after the commencement of the disease. This form differs from the catarrhal rather in the violence of its contagion, and the extreme rapidity of its course, than in any radical dissimilarity of nature. There are three varieties of it: The *purulent ophthalmia of children*, the *common purulent ophthalmia of adults*, and *gonorrhœal ophthalmia*.

PURULENT OPHTHALMIA OF CHILDREN.—This invariably begins a few days after birth, generally on the third or fourth day.

*Symptoms.*—At first the edges of the lids appear red and glued together; their internal surface is red and villous, and the eye is kept closed. Then the conjunctiva of the globe becomes intensely scarlet, and much swollen, often so much so as to cause eversion of the lids; it secretes a thick, purulent discharge, and the child is very restless and feverish. If neglected, the disease may occasion opacity or ulceration, or, perhaps, sloughing of the cornea; but it generally yields to proper treatment.

*Causes.*—The presence of a leucorrhœal or a gonorrhœal discharge in the mother, is one of the causes of this affection; some of the secretion finding its way into the eyes during the transit of the child through the vagina, or upon its first opening them after birth. Neglect in washing the natural cheesy secretion of the skin away from the eyes. The use of irritants, as soap, alcohol, used in cleansing the child, together with exposure to cold, damp, light, and bad nursing.

*Prognosis.*—Scarcely any disease has a greater tendency to an unfortunate termination, if neglected or over-treated. If left to itself, the accumulating secretion seems to soften the cornea, hasten its destruction, and, if a mild treatment be adopted, and pursued with care, it is almost certain to be effectual; even if haziness of the cornea has begun to show itself, we need feel no uneasiness, provided the other symptoms are favorable, as the transparency will soon be restored.

*Treatment.*—The most watchful and constant attention is required from the commencement of this disease.

The eyes should be kept clean. Weak injections of a solution of chlorate or permanganate of potash, or luke-warm water, or a solution of alum. The nozzle of the syringe should be carefully insinuated beneath the lid, and then inject with gentle force. Great care should be used by the nurse or physician, so that there be no squirting into their own eyes, as this has often given rise to conjunctivitis and loss of vision.

The injections, as a rule, should be repeated every two or three hours, according to the severity of the symptoms, so as to keep the eye free from any accumulated discharge; they had better be continued night and day. Following the injection, a little glycerine, or rose-water ointment should be applied along the edge of the lids, to prevent them adhering, and a fine compress, kept constantly wet with an infusion of pulverized nutgall, should be kept constantly applied.

Other washes may be substituted for those mentioned, if there is indication demanding them. Among the best of these is the tincture of myrrh, which should be applied freely. But it must be borne in mind that improvement must be gradual, and is not to be hastened by frequent changes of remedies. If it is desirable that a different collyrium is called for, one made of solution of hydrastin, rhusin, baptisin, hamamelin, sulphate or acetate of zinc.

Solutions containing the nitrate of silver, or bi-chloride of mercury, so strenuously recommended by the old school, should not be made use of, as they are irritating and mischievous.

If the cornea is implicated, even to a slight extent, it is best, as a



precaution, to drop into the eye, a drop of a solution of the sulphate of atropia, one or two grains to the ounce; we thus diminish the risk of extensive adhesion of the iris and closure of the pupil. If the child be feeble when the disease declares itself, it is well to look after its nutrition, and keep it up to a high standard. The manipulations about the eye should be performed with the greatest delicacy. The bowels should be acted on with a grain of leptandrin and irisin in a teaspoonful of neutralizing cordial, and if there is great tumefaction, the irisin might be repeated every few hours, or a teaspoonful of the C. syr. stillingia repeatedly. As the case progresses, and convalescence begins, dispense with the injections, use glycerine and astringent washes freely; and, internally, tonics, as the elixir of cinchona et ferri.

**PURULENT OPHTHALMIA IN ADULTS.**—This form of ophthalmia differs from all others in the virulence of its contagion and the rapidity of its course. It is caused by direct contagion, by exposure to the glare of light, to winds charged with fine sand, and especially by the influence of cold at night, after exposure and great fatigue during the day. It may also be produced by the close, damp atmosphere, loaded with animal vapor, that results from crowding many persons together in a confined place, and from the neglect of cleanliness and ventilation; hence its prevalence in camps, on board of ships, in hospitals, schools, &c. But, when once produced by any cause whatever, it is both contagious and infectious; that is, capable of being propagated both by contact with the purulent secretion and by exposure to its vapors, if many persons afflicted with the disease are crowded together.

*Symptoms*.—In a very short time after its invasion, the lids become enormously swollen and livid; the disease not only causing great thickness of the conjunctiva, but implicating other tissues of the lid. There is stiffness, itching and watering of the eye, with a sense of *dust* in it, and the lids not only swollen, but stick together during sleep; and if we examine the internal surface, we will find it *red, swollen, villous*. As the disease advances, the conjunctiva covering the globe becomes intensely red, swollen and villous, and discharges a copious or profuse secretion of pus. The swelling of the ocular conjunctiva is called *chemosis*.

It is produced by a secretion of blood, lymph and serum into the cellular tissue, which connects the conjunctiva to the sclerotic; and it elevates the conjunctiva into a kind of roll around the margin of the cornea, which sometimes overlaps it entirely.

These symptoms are accompanied with severe burning pain, extending to the cheek and temple; headache, fever. The palpebræ are swollen; base shining; so that the patient cannot open the eye.

*Consequences*.—It may lead to ulceration, or opacity, or, perhaps, sloughing of the cornea, to adhesion of the iris, or to impairment of the vision, from extension of inflammation to the internal parts of the globe. The prognosis is usually favorable under the improved mode of treatment.

*Treatment*.—When I have charge of a patient from the beginning of the disease, I think I have seen cases cut short by the following treat-

ment: an emetic of the C. powder of lobelia, and with it, drinking freely of weak capsicum tea, then a vapor-bath, and concluding with a most active, thorough cathartic, keeping up diaphoresis with Dover's powder and asclepias. As soon as the secretions are free, quinine and hydrastin. But, if unable to arrest it or break it up, we must resort to arterial sedatives, such as aconite and asclepin in combination.

The patient must be kept in bed, in a well-ventilated apartment, his eyes shaded or room darkened.

Cleanliness is a cardinal point in this disease; sponging the patient twice daily with an alkaline wash. Mild purgation has a good effect,—a strong sympathetic effect upon the conjunctiva. Podophyllin, euonymin and nux vomica.

The very best results are obtained by promoting the action of the skin, a warm pediluvium at bed-time, and some diaphoretic.

Pain in all cases must be relieved; the patient must have sleep, either with hyoscinamin and opium, or chlorodyne, or hypodermic injection of morphia.

A very important item in treatment is the exhibition of alteratives, as the C. syr. stillingia, irisin, alternated with bark, iron, &c., &c. We must place great dependence upon local remedies; for, if none are employed, or only improper ones, the eye may be lost.

The first and most essential point in local treatment is cleanliness, complete and frequent cleansing of the eye during the day and night. This can be done by means of a small syringe; and the best agent for injection is a solution of permanganate of potash, one to two grains to the ounce; this not only cleans the eye, but acts as a mild astringent. With regard to remedies for injection, I am most partial to solutions of hydrastin, rhusin, geranin, myricin, hamamelin, lycopin, baptisin, or infusion of walnut leaves; but no remedy can excel the permanganate. The tincture of myrrh, if the above fails, merits attention. My experience leads me to most emphatically condemn the use of the nitrate of silver or acetate of lead, as being essentially injurious. Sulphate of zinc, copper, alum, are not so good as our concentrated agents.

To prevent the lids from adhering, glycerine, either alone or medicated, has an excellent action.

Counter-irritation is highly serviceable in this disease, and should be early employed. For promptness, a blister on the temples, behind the ears and nape of the neck, produces a marked change on the discharge. The injections into the eye should be used every two or three hours, following with glycerine, sufficient to keep the lids comfortable. An agreeable mode of treatment consists in occasional fomentations of such agents as stramonium, belladonna, opium, hyoscinamus; or the vapor may be conducted to the eye by means of the eye-fountain, which is a good way of applying the remedies. If there is marked chemosis, threatening the integrity of the eye, it is a good practice to incise it, and thus lessen the pressure. Scarification of the conjunctiva sometimes becomes necessary, and is always attended with relief. In cases of ulcers of the cornea, much advantage is derived from touching them with caustic soda, sanguinarin or phytolacin.

When the acute symptoms are controlled, and the purulent discharge is disappearing, much good results from wine of opium applied to the relaxed conjunctiva.

All through the progress of the case, good diet, stimulants, comfortable sleep, thorough hygiene, the vapor of bromine, should be exposed in the apartment; and if only one eye is affected, the other should be carefully protected. The convalescence is best established on bark and hydrastis. The use of the atropia lotion should not be neglected.

**GONORRHOEAL OPHTHALMIA.**—The affection resulting from inoculation with gonorrhoeal matter, is even more violent than idiopathic purulent conjunctivitis. It comes upon the eye with terrible suddenness, a few hours after infection, and the cornea may be destroyed, and vision hopelessly lost in a few hours.

It is more frequent in males than in females, the virus being more readily conveyed by the fingers to the eyes. It is more common among the filthy and ignorant than among the educated. It is frequently conveyed by that abominable practice of bathing the eyes with urine.

**Diagnosis.**—There are no marks which can be entirely depended on to distinguish this from the severest form of purulent ophthalmia. If there is any difference, it is this: in gonorrhoeal ophthalmia, the sclerotic conjunctiva is affected from the very first, and great and inveterate chemosis rapidly forms; *whereas*, in the purulent conjunctivitis, the sclerotic conjunctiva becomes affected subsequently to the palpebral conjunctiva; the chemosis does not form so rapidly, nor is it so inveterate. In gonorrhoeal ophthalmia, though the inflammation of the palpebral conjunctiva and swelling be great, it is in general not so considerable as in the purulent and granulated conjunctiva; is not so marked a character of gonorrhoeal as of purulent. The discharge is not only greater, but thicker.

In consequence of the greater severity of the inflammation of the sclerotic conjunctiva, the cornea is still more liable to suffer and be destroyed than in the purulent.

Gonorrhoeal ophthalmia, is one of the most rapidly destructive diseases the eye is subject to. The history of the disease forms the best criterion in diagnosis; generally only one eye is affected.

**Prognosis.**—Notwithstanding the formidable nature of the disease, there is hope of perfect recovery, with early, energetic treatment, although the eye is often destroyed in forty-eight hours from the commencement of the disease. The sight of the affected eye will be either lost, or excessively impaired, unless treatment be early and efficacious.

**Causes.**—Inoculation with gonorrhoeal matter.

**Consequences.**—The most frequent and detrimental is sloughing of the cornea, which is caused by the constriction of its vessels by the chemosis. The sloughing occurs suddenly. After this has occurred, the swelling of the lids subsides, the discharge diminishes and becomes thinner, and the pain greatly abates.

If the slough is very small, the iris may protrude, and close the



aperture, imperfect sight remaining; but generally the greater part of the cornea perishes, and all useful sight is lost.

*Treatment.*—The means to be adopted are, to keep the eye from danger of receiving any of the virus; next, to insure absolute cleanliness in the diseased eye; by frequent removal of the accumulated discharge. To affect this, permanganate of potassa in water, one to two grains to the ounce, may be injected from a small syringe, its nozzle being passed well up beneath the overlapping lid. These injections may be alternated with strong solutions of hydrastin and gelsemin or hamamelin and hyosciamin or with others, of which borax, sulphate of zinc, copper, or alum are to be preferred.

Keep the pupil dilated with atropia in solution, or keep the forehead smeared with extract of belladonna, diluted with glycerine. Employ counter-irritation from the very commencement. For this purpose I usually employ the cantharidal collodion as being a convenient and speedy remedy, applied to the surface by means of a camel's-hair brush, and, after the evaporation of the ether, let it be again applied.

It acts with great facility in uneven surfaces, hence its utility here, in applying it to the neck, the shoulders, behind the ears and temples. Preventing vaporization of the ether by means of oiled silk, facilitates matters greatly.

Sprinkling podophyllin or veratrum on the blistered surface will give all the irritation desired.

Warm fomentations of opium or stramonium are excellent.

Having thus begun treatment locally, an emeto-cathartic, and diaphoretics must be resorted to at once.

But, if the disease has reached its height, and there is great fever and headache, with full pulse and a terribly excited circulation, aconite, gelsemin, veratrum, will be appropriate, free purgation, free diaphoresis, the exhibition of alteratives, and, if these measures do not arrest the disease, and the chemosis is evidently extending into the cornea, and haziness is perceptible, a few incisions should be made completely through the swollen conjunctiva, beginning at the margin of the cornea, and radiating towards the circumference of the eye. The incisions should be fomented with warm water, that they may bleed freely. If there is great pain at night, a subcutaneous injection of morphia and active counter-irritation.

If destruction seems inevitable, give the great sheet-anchor, "quinine;" combine it with hydrastin—it prevents a metamorphosis from taking place.

As a rule, the eye should be syringed every two hours with the permanganate solution, and, to alternate it, might be washed with a piece of sponge every two hours, with a decoction of stramonium and hydrastis, and, as soon as the chemosis begins to lessen, weaker injections may be resorted to.

The air, the hygiene, the diet must be good, the lids must be smeared after every application with glycerine. If the strength suffers, becomes impaired, milk punch, beef essence; albumen should be given, and alteratives with the C. syr. stillingia, irisin; menispermin, phytolacin, rumin, are the remedies for removing the base of the disease.



The above is the plan of treatment that I have found very successful in a large number of cases.

If hernia of the iris occurs through an aperture in the cornea, while the disease is yet at its height, or during the decline of the symptoms, it is often good practice to snip off the small protruding portion, close to the cornea, with curved scissors; in order to prevent an increase of the ulceration and hernia from constant traction of the lid upon the portion of the iris already projecting.

**SCROFULOUS OPHTHALMIA.**—Phlyctenular ophthalmia, commonly called scrofulous ophthalmia, is distinguished from all other inflammations of the eye by symptoms so very striking, that any one, who has once seen the disease, can never mistake it. It is generally the first manifestation of a scrofulous constitution, and generally attacks children about eight years of age.

*Symptoms.*—Redness, extreme intolerance of light; the lids spasmodically closed; the head turned obstinately away from the light; no general vascularity of the conjunctiva, but one or two enlarged vessels running towards the cornea, and terminating at one or more phlyctenular, or small opaque pimples or pustules on the cornea. This, like all other scrofulous diseases, is extremely obstinate, liable to recur perpetually. Its most frequent consequences are, ulceration of the cornea, at the seat of the phlyctenula, and opacity from effusion of lymph within the layers.

At the commencement of the disease, the redness is very slight, only existing inside the lids. As the disease advances the redness increases, and the sclerotic appears inflamed.

One of the most remarkable symptoms is the existence of small pimples on the cornea; they may be absorbed, and then, if seated on the cornea, leave a small albugo, the effect of an effusion of coagulable lymph, which surrounds every circumscribed abscess, which, in process of time, will be totally absorbed; sometimes they produce pimples, at other times they burst and become ulcers.

The excessive intolerance of light is a remarkable symptom, and this is sometimes attended with watering of the eye and sneezing.

Other scrofulous symptoms may be detected in almost every case of the disease; as eruptions about the head, sore ears, swelling of the upper lip, running from the nose, excoriation of the nostrils, enlarged lymphatic glands under the jaws, exostosis of the fingers, swollen joints, tabes mesenterica. With some of these affections we often see the ophthalmia alternate. In some cases we may have an eruption existing, in others, a tumid, hard abdomen, and disordered bowels.

There is invariably debility, leucocythemia—a white cell-blood.

*Predisposing cause.*—The chief is the scrofulous diathesis, which hastens the progress of a local inflammatory disease, and tends to prolong the process of inflammation. Although we, without any hesitation, regard the scrofulous constitution as the chief predisposing cause of this disease, there are other causes of a remote character which operate in its development; namely, poor food, want of air and exercise, insufficient clothing, great mental anxiety; hence the frequency of this disease among the citizens of our large cities, among

the children of the poor, who live in dense, loathsome localities, among the offspring of the intemperate, that great manufactory of disease, cankering humanity in its very bud, dwarfing and deforming its very form and features—the impure atmosphere, insufficient diet, want of cleanliness, and, it may be, our variable climate is also a promoter of the affection.

*Exciting causes.*—Exposure to cold, wet, measles, scarlet fever, small-pox, excessive use of the eyes on weak objects; teething, injuries, particles of dust; bright sunshine may be a cause where the diathesis is present, and catarrhal ophthalmia in serofulous children is apt to degenerate into the phlyctenular.

*Treatment.*—In the treatment of this disease, it must be constantly borne in mind, that it depends on a constitutional cause. Special sedatives are very seldom required, unless the febrile excitement runs high; indeed, any remedy that reduces the strength renders the eye more susceptible to the destructive influences of the disease. One of the best methods of treating this, consists in the exhibition of equal parts of the fluid extract of lobelia and eupatorium per, in such doses as to produce vomiting; then in smaller quantities, so as to excite nausea. There is, perhaps, no better combination in the materia medica, being sedative and powerfully revellent. I usually begin treatment in this manner, giving diaphoretic teas. As soon as perspiration is started, follow with an alcoholic vapor-bath, letting the patient drink freely of cold water, and keeping the same constantly applied to the eyes. Keep up the process for half an hour, then put the patient to bed, have him wrapped up in the blankets which surrounded him, and continue the perspiration, by mild diaphoretics, for six or eight hours, keeping on with small doses of the lobelia mixture, and cold water to the eyes.

This must be followed with an active cathartic, say of podophyllin, leptandrin and jalapin; there is always a full and hard abdomen, and a loaded state of the bowels, and an excessive quantity of morbid feculent matter will be discharged. Such a purgative must be repeated, say every third day. If the disease is not arrested by this mode of treatment, then we must follow on a regular course, until the desired object is effected; the eye relieved, and its safety secured.

The alkaline-bath, in connection with warm pediluvia, should be given twice daily, and continued till convalescence is established.

If the case does not yield at the beginning, apply the blistering solution to the nape of the neck, under each axilla, behind the ears, and, as soon as the cuticle is removed, put on the irritating plaster; get free suppuration, and have the original plaster respread every second day. The irritating plaster applied, either under the axilla or on the arm, is a powerful adjunct in treatment; it must be continued even after the eyes are well. To correct, as much as possible, the constitutional taint, give the alterative syrup, or C. syr. celastrus, or some of the concentrated alteratives. Keith's stillingia alterative has met my most sanguine expectations; so has irisin, corydalin, menisperm, rumin, phytolacin. I have effected more rapid and permanent cures with these agents, than with any other; alternate, with some form

of cinchona. This has a wonderful salutary effect in strumous ophthalmia; a remarkable power on the constitutional disorder. Huxham's tincture of bark, or the elixir cinchona et ferri, or cinchonine, or the sulphate of quinine, have met my anticipations. Iron, also, is an agent, essentially called for; we have white cell-blood, iron is the antidote; the best preparation is, that which gives no disturbance, and is quickly assimilated. These tonics must be continued for some time after a cure is established. In inveterate cases—those that do not appear to give way to any treatment—alkalies, such as the sulphite of soda added to some alterative, is excellent. Chloride of gold, in small doses, and the muriate of platinum, are invaluable remedies.

Diet is of great importance; an invigorating, easily digested food; indigestible substances to be strictly prohibited. Thorough hygiene is to be the rule. In bed, the head should be raised as much as possible, and on no account should the patient be permitted to bury his head in the pillow. The distressing intolerance of light must be relieved by shading the eyes; by the application of cold lotions to the outside of the eye, the forehead, and temples, such as the fomentation of hyosciamus and gelsemin, belladonna and stramonium; infusion of hydrastis and borax. Where these do not operate well, combine stimulants with astringents, such as the tincture of galls and marsh rosemary; or an infusion of cinchona, or of the cornus Florida; the pyroligneous acid also answers well; tincture of myrrh, or tincture of capsicum diluted. Warm poultices of chamomile flowers, or exposing the eye to the vapor of opium, or camphor, belladonna, hyosciamin, &c. Small doses of extract of conium are also of service. Stimulants applied to the inflamed surface of the eye, in the shape of a spray, in this disease, are useful; sometimes it is scarcely possible to effect a cure without them. Stimulants act as local sedatives, if applied after the acute inflammatory excitement. The tincture of capsicum, diluted, is one of the very best; next to it, tinct. sanguinaria canad. More powerful stimulants are seldom necessary. The mild vegetable caustic, in weak solution, may be used, especially if there be pustules or ulcers on any part of the eye.

The dissolved caustic is a good application in any chronic form of ophthalmia, which has advanced to ulceration or pustulation; the strength of the remedy being determined by the state of the part, and the effect produced upon it.

The various and often destructive effects of the nitrate of silver in this affection needs only to be mentioned to be most emphatically condemned.

Belladonna, internally and locally, must never be overlooked; locally, it must be constantly used; internally, with conium, it is of great service.

If we have reason to think that it is complicated with the rheumatic diathesis, alkalies, with macrotin, should be given. The eye also should be bathed frequently with a wash, made of belladonna, gelsemin and hydrastis, or with glycerine, wine of opium, and chlorate of potassa.



Although, in my opinion, the tincture of myrrh and capsicum supersede all other applications, occasionally, the eye might be stimulated with the vapor of bi-sulphite of carbon. The convalescence should be established by tonics and alteratives. Iodide of iron, phosphates, irisin, muriate of platinum, and gold.

No disease is more apt to recur than this; it is, therefore, of the greatest importance to keep up treatment for many months, and, if there is the least symptom of a re-attack, to meet it promptly and energetically. In some cases, cod-liver oil and brandy seems to benefit them, improving the appetite and digestion. The salt-water bath and friction to the spine are important aids; a full nutritious diet, exercise in the open air.

**GRANULAR CONJUNCTIVA** is a thick, rough, fleshy state of that membrane, and is a frequent consequence of severe and long continued ophthalmia. It depends on an hypertrophy of the villous surface of the mucous membrane. (*Fig. 52.*) It causes great pain and disturbance to the motions of the eye, and if it continues, will render the cornea opaque by its friction.

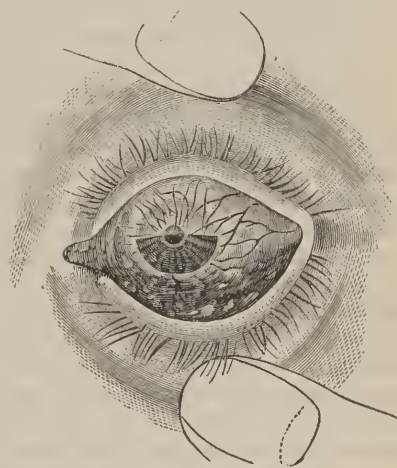


Fig. 52.

The only treatment successful, is removal of the hypertrophy by the ses-quicarbonate of potash, or the knife.

**Pterygium.**—This is a peculiar, vascular, thickened state of a circumscribed portion of the conjunctiva, of a triangular form, the apex corresponding to the cornea, on which it encroaches to a greater or less extent—the base corresponding to the circumference of the eyeball. It has its seat, generally, on the nasal side of the eye, in which case its base corresponds to, and is incorporated with, the semi-lunar fold; but that it is not, in its nature, an extension of the fold of the conjunctiva, is proved by the circumstance that pterygium sometimes occurs on the temporal side, and, even more rarely, on the upper side of the eye.

In its early stages it is light colored, containing few blood-vessels, As it is thus but a slight disfigurement, and no inconvenience, it excites but little attention. But, when inflamed, it reddens, and its vessels are then very distinct. The disease is of consequence only when it implicates the conjunctiva cornea, so that the vascularity and thickening extend to the middle of the cornea, and obstruct the pupil.

It, however, rarely spreads over the cornea, usually ceasing to advance after covering a small segment of it. Cases have occurred where



the growth has commenced from the corner of the eye, and gone to meet the opposite one in the centre.

Two degrees of pterygium are met with; the merely membranous, and fleshy. The former, thin, semi-transparent; the latter, thick and fleshy-looking.

This morbid state of the conjunctiva is usually the result of ophthalmia, or irritation, and is not disposed to disappear spontaneously; but, if mistreated, it may degenerate into a fungous excrescence, covering the whole cornea. Aspterygium is an abnormal growth; it is, like all these, less firmly organized than regular or original parts.

*Treatment.*—The treatment is plain. Excite the absorbent process to activity. For this purpose, if the patient enjoys good health, it will not be necessary to give any medicine. Local applications should do all that is wanted, and, if they fail, an operation is easy and effectual. I have had the best success with the sesqui-carbonate of potash, put on with a camel's-hair pencil, or touching with equal parts of tinct. myrrh and capsicum.

For their removal, raise them with forceps, cut between the diseased growth and the membrane beneath with a fine scalpel, and finish the operation with curved scissors. After the operation, cold applications are made to the eye.

PINGUECULA is a small, whitish-yellow tumor, from the size of a pin's head to that of a small pea, in the sclerotic conjunctiva and subjacent cellular tissue, close to the margin of the cornea on either side. Its treatment is the same as pterygium. Moles, fungous excrescences, are met with, and must be treated on general principles.

## DISEASES OF THE CORNEA.

INJURIES OF THE CORNEA.—The management of the various accidents to which the eye is liable, is a subject of the greatest importance to every physician. The preservation or loss of vision depending, in nearly all cases, on the kind of treatment pursued.

All foreign bodies must be extracted, and the case treated with mucilaginous lotions; pain relieved, and the various symptoms properly controlled.

Chemical injuries, incised and punctured wounds must be treated by the appropriate antidotes, with rest, cold lotions and special sedatives. The results of injury of the cornea, however trifling, may be a momentous affair. The inflammation is sometimes severe, obstinate and dangerous, involving not only the cornea itself, but also other parts of the eye, both external and internal. The membrane of the aqueous humor is particularly liable to suffer; and iritis on the one hand, and inflammation of the proper substance of the cornea, ending in purulent infiltration on the other, are not unfrequent complications.

All affections of the cornea are less distinctly limited to this single tissue than those of the conjunctiva. The cornea, also, being a tissue of low organization, its diseases have a tendency to slow recovery—much time being required for repair of loss of substance or transparency. This same low vitality favors rapid disorganization, especially

when acted on by destructive agents. It is also well worthy of notice, that several diseases of the cornea depend intimately on conditions of the general system, and which can only be cured by removing the morbid diathesis, which gives rise to them. Now, all these conditions have an æsthetic type—an important fact in the treatment of all diseases appertaining to that tissue.

**ACUTE INFLAMMATION.**—Acute corneitis is generally a consequence of neglected injury. The part becomes red and opaque, the sclerotic around highly vascular; and ulceration of the cornea, or suppuration between its layers, or abscess of the anterior chamber, may take place. Interstitial inflammation of the cornea leaves the surface intact, but gives rise to deposits among the laminae—effusions of lymph, capable of being absorbed, or of undergoing a purulent transformation, forming small abscesses, which may discharge externally or into the anterior chamber, or of becoming organized. The opacity assumes different forms.

*Causes.*—Inflammation of the cornea may occur spontaneously, but it is often conjoined with iritis, especially when that affection exists in connection with the rheumatic diathesis, or of syphilis or anemia.

*Prognosis.*—This disease is often subdued without leaving behind it any morbid change of structure; but, when the opacity has been considerable, it sometimes degenerates to a chalky deposit; or, if mostly absorbed, appears to cause so much disturbance of the arrangement of the corneal fibres, that the normal transparency of this structure, and perfection of its refractive function, are never restored.

*Treatment.*—Constitutional treatment is everything here. The muriate of platinum appears to have, generally, an excellent effect; but the general cachexia calls for tonic measures, combined with vegetable alteratives. The C. syr. stillingia, or the C. tinct. of corydalis, with iodide potassium, is a good alterative. The system, in these cases, is below the standard of health; it may be complicated with struma or rheumatism—that state of the system indicates tonics, alteratives, everything calculated to improve the quality of the blood, and antagonize any morbid peculiarities of constitution. As corneitis is frequently complicated with iritis, the use of atropia, or the gelatine paper of atropia, is important, not only to prevent contraction and synechia, but as having a sedative effect about the eye; stimulating lotions are prejudicial, so that anodyne fomentations are the remedies, such as infusions of opium or stramonium, combined with hydrastis, or althea root, sassafra pith; these agents relieve the pain and tension.

**SCROFULOUS CORNEITIS** most frequently occurs between the ages of eight and sixteen.

*Symptoms.*—The cornea opaque, rough, red, prominent; the sclerotic also red; pain and intolerance of light are generally trivial; there is a great tendency to inflammation of the iris and retina; febrile disturbance, dry skin.

*Treatment.*—Active but not debilitating measures should be employed from the start. We usually give a stimulating emetic, followed by a cathartic of podophyllin and bi-tartrate of potassa; the alcoholic vapor-bath, following with aconite and asclepin, or the C. tinct.

serpentaria; atropia should be dropped into the eye; or belladonna, diluted with glycerine, smeared over the forehead; and the irritating plaster should be applied on the denuded cutis, behind the ears and nape of the neck. The treatment laid down for scrofula should be rigidly adopted. If pain be severe, equal parts of the tinct. of aconite, belladonna, stramonium, should be applied around the orbit. If there be a great deal of general depression, quinine and hydrastin. Glycerine, with morphia, is the only local application admissible to the lids.

**OPACITY OF THE CORNEA.**—Opacities of the cornea are distinguished by different names, according to their density and the character and situation of the lesion.

**NEBULA**, or cloudiness, is the result of acute ophthalmia, leaving a preternatural deposit, which has become permanent, and even organized between the conjunctiva and cornea.

This opacity is a very common consequence of inflammation of the cornea. Nebula is the slightest degree of opacity, and is most generally situated in the superficial layers, though occasionally deep-seated; and, in some cases, it may be general, and is the result of pressure or serous effusion in the substance of the cornea. The opacity may cover the whole of the cornea, yet the patient can distinguish objects as through a veil; and the iris and pupil may be seen through it. In other cases, the nebula is only scattered or, in distinct specks or dots, each of which has distinct vessels, continuing to support the deposit.

**ALBUGO**, in some respects, resembles nebula, chiefly differing from it in being deeper-seated, and in being of a pearly-white appearance, and is the result of an effusion of plastic lymph in the anterior layer of the cornea.

**LEUCOMA** differs from the two other varieties of opacity in being more dense, and of a chalky-white color, with a shining aspect. It is an opaque cicatrix of the cornea,—a transformation of the substance of the cornea itself, and an adhesion to the mucous covering; it has a contracted, circumscribed appearance, depressed in its centre.

*Treatment.*—All the three kinds of specks, *nebula*, *albugo* and *leucoma*, have a natural tendency to disperse as soon as the disease giving rise to them subsides, or is removed; hence the propriety of removing all sorts of irritation about the lids,—such as inverted hairs, granular conjunctiva, and any degree of inflammation. Then absorption of the lymph is to be promoted by counter-irritants, such as setons, irritating plasters, veratrin ointment, iodine; by alteratives, such as muriate of platinum and gold; by measures calculated to improve the general health, and, locally, by dropping into the eye stimulating astringent washes.

**NEBULA** may, in nearly all cases, be removed by a persevering use of strong astringent and stimulating washes. I have been successful with a strong solution of the sesqui-carbonate of potash, with the C. tinct. of myrrh, alternated with an astringent; the tinct. of sanguinaria has also been successfully used, but as this occasions inflammation, it should be used with caution.

The exciting of inflammation is not to be recommended as a means of

exciting the necessary change in the parts, and bringing about absorption.

Division of the vessels leading to the part is sometimes resorted to, but I have never found it necessary. Patience and perseverance are the great elements of success in these cases.

IN ALBUGO, where the deposit is within the cornea, much more stimulating applications are required. The caustic solutions should be the washes from the beginning; and they should be continually increased in strength to as great an extent as the eye can bear without being excited to inflammation.

The stimulating astringent wash, before spoken of, may be alternated with the alkaline solution, or the collyrium of the wine of opium and gelsemin; the bi-sulphide of carbon may be used as we have directed.

Any remedy, locally or internally, calculated to stimulate the absorbents of the part, will benefit more or less. Absorption will go on more rapidly in young persons, who possess strong vital powers, than in those who are feeble and of low vitality.

FOR LEUCOMA, pretty much the same treatment is indicated as for the other species of opaque cornea, but the result is much more doubtful. If recent, it may be partially removed by the absorbent measures. If of long standing, it is irremediable. If both eyes are affected with leucoma, and should the opacity be in from the pupil, it is right to make an artificial opening in the iris, opposite some part of the cornea, that is transparent.

*The constitutional treatment* for these three varieties of opacity is the same in character. In nebula much less is required; and for the last, restoration is rare under any measures that can be adopted. In albugo, however, frequent repetitions of hydragogue cathartics and strong diuretics, will aid much in promoting local absorption. All alteratives that may be used, should be selected from the class most likely to aid this essential object. Counter-irritation is applicable with this view.

ONYX.—A suppuration between the layers of the cornea, and is an occasional result of acute ophthalmia. It derives its name from its resemblance in shape to the white spot at the root of the finger nail. Under the use of the remedies most applicable to the particular ophthalmia in which it originates, incipient onyx is often removed by absorption.

*Treatment.*—The remedies most likely to subdue the ophthalmia in which the onyx has originated, must be carefully employed. Emetics, purgatives, alteratives; irisin, muriate of platinum and gold, counter-irritation, appear to act favorably by promoting absorption of the purulent effusion in these abscesses of the cornea. Fomentations of hydrastin and gelsemin are of use. Belladonna should be used to counteract the tendency to contraction of the pupil.

ARCUS SENILIS, a cloudy ring near the margin of the cornea, sometimes complete, at others, only extending partly around it. Some authors regard it as an indication of fatty degeneration of the heart, but, as far as the eye is concerned, is not to be considered a disease.



deserving attention. The patient may be assured that the change will be limited to the border of the cornea, and will not affect the field of the pupil, or interfere with vision.

**ULCERS OF THE CORNEA.**—These not unfrequently result from the same causes as in other parts of the body, and are more serious, as always endangering vision. They occur not only as the consequence of mechanical injury, as the result of the phlyctenulæ of scrofulous ophthalmia, or any other form of conjunctival inflammation, or from strong or irritating substances thrown into the eye.

The whole cornea may be in an ulcerated condition, or the ulcer may be small, as a speck, not the less dangerous, as it is often burrowing, and may work its way deep in between the layers of the cornea, until it spreads all over the anterior chamber of the eye.

The edges of the corneal ulcer are generally elevated, and rough, and its surface is commonly covered with brownish pus. When a consequence of scrofulous ophthalmia, they are deep, tend to perforate the cornea, and leave an opaque cicatrix; when arising from other causes, they are often superficial, and heal with a semi-transparent cicatrix. Pain frequently exists, not only in the ball, but in the lids, due chiefly to the rough and projecting edges of the ulcer.

*Treatment.*—Fix the eye by means of the eye speculum, and touch the sore, morning and evening, with powdered caustic, by means of a camel's-hair brush; afterwards apply the slippery elm poultice. Under these measures, the dark covering will soon pass off, and the affected part change its appearance to a more florid hue. The surface of the eye should be washed with milk and water, or an infusion of witch hazel or hydrastis. As soon as the ulcer has a healthy appearance, diminish the strength of the caustic, occasionally washing out the eye with cold water, or an infusion of the pith of the sassafras, or some other soothing wash. If, however, the indurated character of the ulcer should remain after five or six days' application of caustic powder, then resort to the caustic potash. Then, with the point of a fine camel's-hair pencil, moistened with the caustic, barely touch the ulcer. As soon as it changes color, drop on a few drops of vinegar, which will neutralize the alkali, and prevent its excoriating the surrounding parts.

The sesqui-carbonate of potash is unattended with any danger, and is usually sufficient in all cases.

All preparations of lead or nitrate of silver should be most scrupulously avoided, for they are certain to be decomposed, and the metal incorporated with the corneal tissue, forming an opaque deposit.

Counter-irritation, and promptly controlling symptoms as they arise, with the same general and local treatment as directed in other cases.

Constitutional treatment must be rigidly enforced.

**STAPHYLOMA.**—This term is employed to signify any protrusion on the anterior surface of the eye. There are several varieties of it.

**STAPHYLOMA IRIDIS** signifies a protrusion of the iris, which occurs when the cornea is perforated by ulcers or wounds. The protruded part should be punctured or be snipped off and then touched with sanguinarin.

Staphyloma of the cornea is the name given to a disease of the substance of the cornea, resulting in thickening and opacity of its layers, and a considerable protrusion of the anterior surface. Its usual mode of formation is as follows :

Suppose that the entire cornea has been destroyed by extensive ulceration, the action of the recti muscles pushes forward the lens and iris ; or the iris alone is displaced.

A cicatrix results, made up of a new tissue taking the place of the disorganized structures, and forming a projection beyond the normal curvature of the front of the globe.

When this is not very prominent, it causes little irritation, and, though unsightly, need not be removed. When the bulging is excessive, it is necessary to excise a portion of the mass, that the patient may be relieved from the irritation occasioned by its friction against the lids, and from the deformity.

Excision, or clipping off the flap with scissors, taking care not to impinge upon the lens or vitreous humor. In some cases, we may simply remove an oval portion of the centre of the staphyloma, allowing the edges to fall together, or even uniting them by a single fine suture. The globe is thus restored to about its natural size, and where a patient cannot afford an artificial eye, has a better look than when merely the stamp of an eyeball remains.

If partial, the caustic applied to the apex of the staphyloma, so that the inflammation excited may thicken the cornea, and enable it to resist further protrusion.

**HERNIA CORNEA.**—When the cornea is nearly or quite perforated by an ulcer, a thin transparent vesicle is very apt to protrude from the aperture, consisting either of the membrane of the aqueous humor, or of a thin lamella of the cornea, or else of an imperfectly organized cicatrix protruded by the aqueous humor. By snipping it off its reproduction is certain ; the best treatment consists in touching it repeatedly with the sesqui-carbonate of potash.

**CONICAL CORNEA.**—In some persons, the cornea, instead of its natural spherical shape, presents the form of a cone, more or less acute. The change comes on insidiously, the patient finding his vision less distinct, but experiencing no pain, nor perceiving any injection of the eye. The cornea seems to become weak in its structure, so as to bulge out under an increased secretion of the aqueous humor. As the disease advances the change becomes more and more marked.

Vision is imperfect, from the excessive reflection of the rays as they enter the eye ; and concave glasses, though of service in mild cases, scarcely do any good in advanced stages. In some cases the pupil is large, the iris tremulous in the superabundant aqueous humor, and the entire globe slightly softer to the touch than natural. It sometimes occurs in both eyes ; but seldom begins in both at the same time.

The cause is not well ascertained. It is common among all classes, and does not seem to be the result of excessive use of the eyes.

*Prognosis.*—By a tonic and alterative course we are often enabled to arrest the disease. Any absolute restoration of the natural form

of the cornea, by pressure, puncture, evacuation of the aqueous humor, extraction of the lens, or other means, cannot be expected, although I have occasionally been successful with all methods.

*Treatment.*—Palliatives rather than restoratives afford our sole means, aside from surgical treatment; even an arrest of the organic change sometimes takes place by good tonic and alterative treatment, and a careful and judicious use of the eyes, thereby reducing vascular congestion.

Concave glasses are sometimes an auxiliary to vision, if the affection is slight.

Dises of horn, perforated by a slit, have been attended with success, their utility consists in lessening the diameter of the pupil, and cutting off lateral rays.

Reasoning from these facts, the operation by which the edge of the pupil is drawn through and allowed to form adhesion, with a small puncture in the cornea, was devised. The best mode of performing the operation is at the upper and lower edges of the pupil, so that its form may be changed to a vertical slit. The operation is to be done by puncturing the cornea near its lower margin, drawing out the iris by means of a short, blunt hook, with which the edge of the pupil is seized, and securing it out of the corneal wound by a very fine ligature. This shapes the pupil like a balloon. If a second operation is resorted to, the puncture is to be made at the upper edge of the cornea, and the iris drawn out in the same manner, giving the pupil a slit-like form. Extraction of the crystalline lens has also been successful, and wearing the usual cataract glasses.

If puncture of the cornea, for the evacuation of the aqueous humor, be resorted to, the operation may be done at any point near the edge of the cornea.

## DISEASES OF THE SCLEROTICA.

WOUNDS OF THE SCLEROTIC.—Incised wounds of the sclerotic implicate the conjunctiva, and generally extend to the choroid, retina, and vitreous mass. Should any considerable protrusion of the vitreous or other viternal parts of the globe exist, it may be expedient to excise this with fine curved scissors; but, should the protrusion be slight, it is better to leave it undisturbed, till it acts as a source of irritation. Then excision; otherwise perfect rest. Keep the lids closed by strips of plaster, and abstain from all lotions.

Rupture of the sclerotic is sometimes caused by a blow; the prognosis here is not so favorable, as all the important parts of the eye have been injured by the shock; *rest, quietness*, and non-interference is the rule. If the lens are forced through the wound and remains between the sclerotic and conjunctiva—it should be carefully extracted.

THINNING OF THE SCLEROTIC.—This is sometimes observed where the choroid has been long affected in strumous subjects, and seems to be accompanied by tension of the globe from increased secretion of its contained humors. A certain degree of this alteration is not incompatible with vision, and it occasionally yields to absorbents and tonics.

**ACUTE INFLAMMATION OF THE SCLEROTIC.**—This is commonly known as rheumatic ophthalmia; because the structure affected is similar to that which is attacked by rheumatism. Like all other forms of rheumatism, it is produced by cold, sudden atmospheric changes, dampness, but it does not seem to depend on the presence of lactic acid in the system. Hence, it does not resemble rheumatism in anything but in its exciting causes, and in the pain and exacerbations.

*Symptoms.*—Rheumatic ophthalmia makes its appearance with a sensation of heat and dryness in the eye, and stinging, darting pains passing from the globe to the orbit, or to the forehead, temples and face. When the disease is fully developed, the pain is very severe, and seems to involve the entire orbit. It never ceases entirely; it is easy in the morning, intense at night.

The pain is deep, pulsating in character.

Constitutional symptoms soon exhibit themselves; the secretions are arrested; the skin is dry; there is fever.

In pure rheumatic ophthalmia the lids are entirely free from disease. There is no muco-purulent secretion. The redness is confined to the sclerotic. The iris is discolored; its movements are sluggish; the pupil is contracted, and but little changed by light. Dimness of vision is always present, depending upon a haziness of the cornea and pupil. It may lead to opacity of the cornea or iris.

*Prognosis.*—This form of ophthalmia yields readily to treatment, but, if allowed to progress, or badly treated, the pupil may close, or the anterior crystalline capsule be left opaque.

*Diagnosis.*—This affection may be distinguished from inflammation of the conjunctiva—

1st. By the character of the pain, which is a severe, aching, principally felt in the eyebrow, temple and cheek, and is greatly aggravated every evening, being excessively severe during the night, but remitting towards morning. Whereas, in conjunctivitis, the pain is of a scalding nature, and accompanied with a sensation as if sand was in the eye.

2d. By the character of the redness, which is deep-seated, and of a pale pink; and by the vessels running in slight lines from the circumference of the eye towards the cornea; whereas, in conjunctivitis, the redness is scarlet, superficial and vivid; the vessels are tortuous, and freely anastomose, and can be moved about with the finger.

*Treatment.*—I always begin treatment with an emetic of the C. powder of lobelia and capsicum, repeating at every second or third day, followed by an infusion of equal parts of asclepias and eupatorium, the alkaline-bath daily, with free sponging with the alkaline wash. Having once obtained free secretion from the skin, give the C. podophyllin pill, then follow with colchicum and quinine, and alternate with

R̄.—Extract of conium, ʒss;  
Iodide Potassium, ʒi;  
Tinct. gelseminum, ʒiv;  
Tinct. macrotys, ʒi;  
Water, ʒii.—M.

A teaspoonful every three hours.



In the evening, the warm foot-bath, and an anodyne or subcutaneous injection of morphia is sufficient to give sleep and relief from the exacerbation.

Counter-irritation to the back of the neck, and behind the ears, must not be neglected. All eye-washes are useless; a stream of warm water poured on the temples, or dry warmth, by means of muslin bags filled with chamomile flowers, heated on a hot plate, are the most soothing local applications.

A poultice of poppy leaves, or hops, or stramonium, exercise a kindly influence.

To relieve the circumorbital pain, nothing is more efficient than a combination of the extracts of belladonna, opium and gelsemin, diluted with glycerine, and smeared over the forehead. Convalescence must be established on alteratives, tonics and thorough hygiene.

CATARRHO-RHEUMATIC OPHTHALMIA is a combination of inflammation of the sclerotic with that of the conjunctiva. The symptoms of conjunctivitis, that is to say, roughness and sense of dust in the eye; muco-purulent discharge, and superficial scarlet redness, are combined with the deeper-seated, straight-lined redness, and with the zone around the cornea, and fits of nocturnal aching, that characterize inflammation of the sclerotic. This disease is very apt to lead to onyx, and to ulceration of the cornea, and suppuration on the anterior chamber.

*Treatment.*—The same treatment that we laid down for purulent.

INFLAMMATION OF THE ANTERIOR CHAMBER.—This affection is generally the consequence of some other form of ophthalmia, but it may occur by itself.

*Symptoms.*—The iris dull, the cornea mottled, the eye very tense, painful, and fever. The most peculiar consequence of this disease, whether primary or consecutive, of some other inflammation of the eye, is *hypopyon*; that is, an effusion of an aluminous fluid into the anterior chamber. It is distinguished from onyx by the white fluid moving in different positions of the head, and by its upper margin being straight, not convex.

*Treatment.*—Muriate of platinum, or chloride of gold, belladonna, tonics, and the general treatment of iritis will remove the inflammation and cause absorption of the hypopyon.

HYPOPYON.—This is a collection of pus, or puro-lymph, within the chambers of the aqueous humor, and most frequently within the anterior chamber, secreted by some portion of the parietes of these cavities, as the lining membrane of the cornea, the iris, the capsule of the lens, or the ciliary processes.

The most frequent sources of true hypopyon appear to be the iris and the cornea.

*Treatment.*—The inflammation must be combated by the appropriate means, and on its subsidence we must chiefly trust for the removal of the purulent absorption. Aconite and asclepias, irisin and gold, belladonna will be necessary, and advantage will be derived from the use of anodyne fomentations.

If the chambers appear completely filled, we can scarcely depend on absorption, while, by delay, we risk destruction of the eye, so that

it is better to give exit to the matter by an incision in the cornea. Under such circumstances, we must regard the opening of the cornea as nothing more than a means of relieving pain, and of preserving such a form of the eyeball as may permit the application of an artificial eye.

## DISEASES OF THE IRIS.

**PROLAPSE OF THE IRIS**, in consequence of penetrating wound of the cornea, may be attempted to be reduced by closing the eye, and very gently rubbing the lid against the cornea, so as to press on the prolapsed portion, and by exposing it to a strong light, or dropping in a few drops of the solution of the calabar bean, so as to cause the pupil to contract. But if the pupil is prolapsed, atropia should be applied to cause dilation. If, however, the prolapsed part cannot be returned, it should be snipped off, in order to avoid the irritation which it would otherwise cause; and, if the wound does not heal soon, it should be touched with the sesqui-carbonate of potash.

**AFFECTIONS OF THE IRIS.**—The iris appears to be only slightly susceptible to become inflamed after traumatic injury, unless a foreign body is lodged in its tissue, or continuous pressure is made upon it.

Large fissures may extend across it or around the margin, or a segment may be excised in operations for artificial pupil, or for relief of glaucoma, without the appearance of a single morbid symptom. Iritis seldom follows. But, if the iris is pressed upon by a dislocated lens, or when a foreign body is imbedded in it, inflammation is induced, which is nearly uncontrollable, until the exciting cause has first been removed. Iritis has been divided into numerous varieties by authors, but without any good reason.

**INFLAMMATION OF THE IRIS, OR IRITIS.**—Surgeons have enumerated several species of iritis, chiefly with reference to the nature of the cause producing it. For example, *traumatic iritis*, which arises from penetrating wounds; *rheumatic iritis*, that which arises from cold; *syphilitic iritis*, that which accompanies the venereal taint; *gouty iritis*, that which is prevalent among persons suffering from gout; *scrofulous iritis*, that which is common among young scrofulous subjects.

Except under such circumstances of peculiar irritation, two varieties may embrace them all; namely, the rheumatic and the syphilitic.

The iris being muscular in its structure, and covered with a serous membrane, is extremely liable to inflammation of an adhesive character, which frequently involves the sclerotic, the anterior capsule of the lens, and the deeper structures of the eyeball.

**Symptoms.**—In the first stage, the fibrous texture of the iris appears confused; we have a dimness of vision, and it loses its color; if dark, it becomes reddish; if blue, it becomes greenish. The pupil, also, is contracted and irregular. In the next stage, lymph begins to be effused; sometimes in the form of a thin layer, causing the surface to appear rusty and villous; sometimes in small nodules; sometimes the

pupil is filled with a film of it; sometimes it is poured out in great abundance.

The eye displays a pink redness, with vessels running in straight lines from the circumference of the eye, and terminating in a vascular zone around the cornea; but, in very acute cases, the conjunctiva becomes injected likewise. Intolerance of light, dimness of vision, more or less burning, stinging pain in the eye; besides this, there is a severe aching of the brow and parts around the orbit, coming on in nocturnal paroxysms, depending, probably, on an affection of the orbital periosteum, and surrounding fasciæ.

There is usually considerable fever, with coated tongue, constipated bowels, dry skin and hard pulse; it is remittent in character, coming on in the evening, with an increase of pain. Dimness of vision and haziness become very prominent, as the disease advances. The symptoms of syphilitic iritis are the same; the fact of a syphilitic taint is the only point which makes the diagnosis certain. Iritis seldom proceeds to ulceration, or even suppuration, but adhesions are not unfrequent or unimportant terminations.

*Causes.*—Iritis may be caused by injuries, or by over-exertion of the eye; but it more frequently depends on constitutional taint; syphilis and struma, very prevalent where the allopathic system is in vogue, evidently caused by mercury.

*Prognosis.*—Favorable, if the disease is recent and confined to the iris, although the impairment of vision may be considerable; but doubtful, if neglected or improperly treated; or if of long duration, it frequently results in opacity of the capsule, obliteration of the lens, or involving the retina, produces amaurosis, or the cornea, producing opacity. Unfavorable, if there be much deep-seated pain, and great effusion behind the iris.

*Treatment.*—The indications are, to subdue inflammation; to arrest the effusion of lymph, and create absorption of what is already effused; to preserve the pupil; to allay pain.

*To subdue inflammation.*—The treatment of iritis is very important, and it is not only a peculiarly acute and painful variety of inflammation, but runs its course very rapidly, and, unless arrested or modified, by prompt and effectual treatment, will probably occasion irreparable mischief. Active emetics, hydragogue cathartics, followed by thorough perspiration, should be persevered with till the symptoms abate.

If the patient can bear it, and if there be much pain and fever, first a rousing emetic, then a cathartic of podophyllin, jalapin, bi-tartrate of potassa, and repeat until we get a decided result. With these we would give aconite, veratrin and asclepin, combined. A lye-bath, or a vapor-bath daily, and every evening the hot foot-bath. For a drink, citrate of potassa in some vehicle, counter-irritation to the temples, behind the ears, and nape of the neck.

For arresting effusion and causing absorption, we always find that the patient is benefitted by quinine and hydrastin; specially by muriate of platinum or gold, in alternation with irisin, or the C. syr. stillingia, with iodide of potassium.

To preserve the pupil, it should be kept well dilated with atropia,

or a thick solution of the extract of belladonna should be painted over the lids, or apply stramonium and drop in atropia solution. To relieve pain, a subcutaneous injection of morphia every night. If the case does not yield while pursuing this treatment, then such a combination as conium, macrotin, and iodide of potassium. To relieve the intense circumorbital pain, nothing is more efficient than the extract of stramonium and hyosciamus. Cooling applications to the eye may be good. Showering the temples, vaporizing the eye and side of the head with medicated vapors. In nearly all cases of iritis, we find the patient broken down, either with mercury or disease, so that tonics must be given early and perseveringly; the wine bitters, C. tinct. bark and tamarac; the vegetable alteratives all exercise a most favorable influence. If we have reason to suspect that the disease is but a symptom of syphilis, we must remove the cause; for this purpose, I employ podophyllin and menispermin, associated with tonics and iodide of potassium, or iodide of ammonia; such a formula as the following:

R<sub>y</sub>.—Podophyllin, grs. v;  
 Hydrastin;  
 Quinine;  
 Menispermin;  
 Iodide potassium, ãã grs. xxx;  
 Extract hyosciamin, q. s.—M.

And make 50 pills—two thrice daily. The iodine and nitro-muriatic acid-baths are peculiarly appropriate.

In scrofulous cases, we find it good practice, to pursue the same treatment, repeating the emetic frequently, and adhering more to tonics and alteratives. C. tincture of corydalis alternated with iron, as the pyrophosphate, iodide, or the elixir cinchona et ferri. Cod-liver oil with iron is frequently beneficial. The daily use of the salt water bath with iodine, followed with brisk friction, is always beneficial. In these cases, it is tedious, difficult, to overcome the diathesis. But, by the persevering use of means which are so abundant, and the constant application of the irritating plaster, and attention to the secretions and excretions, you will always succeed. In gouty iritis, the vegetable alteratives should be used to stimulate the secretions. Colchicum and turpentine might be given here, with advantage, otherwise the same general treatment should be adopted.

There are three consequences very liable to occur in cases of protracted iritis; three consequences of organization of lymph, namely: *synechia posterior*, adhesion of the iris to the capsule of the lens; *synechia anterior*, adhesion of the iris to the cornea; and *atresia iridis*, or closure of the pupil. They may all, if they are recent, be removed by an alterative course, with muriate of platinum and gold, but if of long standing, are irremedial, except by operation.

In the early stage, when pursuing a thorough alterative course, with these adhesions formed, they are frequently detached by means of atropia; or, if they are not entirely separated, they may be so far elongated as to allow free play of the iris, and lessen the danger of



the formation of further adhesions in the event of another attack. Where any of these three named conditions take place, where the movements of the iris are interfered with, and an irritable condition of this structure is kept up, the bands of lymph may be detached by means of an extremely minute hook, designed for this purpose, blunted at its extremity, so as not to endanger the lens. It is introduced through a small puncture of the cornea, without evacuating the aqueous humor, and is then carefully passed between the edge of the pupil and the lens, dividing or tearing away the adhesions. The patient should be under the influence of anæsthetics, so that perfect immobility of the eye may be secured. After the operation, the pupil should be dilated by atropia, to prevent the formation of adhesions. A similar operation for detaching the effused lymph from the edge of the pupil, and the crystalline capsule may often be resorted to where the pupil has become wholly closed, instead of the formation of an artificial pupil for the restoration of vision.

**MYOSIS.**—The pupil is preternaturally contracted, considerably below the medium size, perfectly, extremely limited and slow in its motions, scarcely dilating at all. It is frequently met with in persons accustomed to look at minute objects, and is attended with great obscurity of vision, especially in a feeble light, because the iris is unable to dilate.

*The only treatment* is to give repose to the eyes and attend to the general health. Special treatment is of little avail, shading the eyes; reading, writing, and laborious occupations of the sight should be avoided; exercise in the country should be enjoined; and the patient should retire to rest at an early hour.

**MYDRIASIS.**—A preternatural dilatation of the pupil, which does not contract on exposure to bright light. Very frequently this is merely a symptom of certain kinds of amaurosis—the results from loss of power in the branch of the third pair which presides over the contraction of the pupil. Mydriasis may exist in one or both eyes, causing, in either case, an indistinctness of vision, a sensation of dazzling, and a feeling as if a foreign body was in the eye. The pupil is widely dilated, vision is confused.

*Causes.*—This condition may be induced by everything which occasions paralysis, such as injury to the brain affecting the *tubercula quadrigemina*, as in apoplexy and congestion of the brain. It may result from blows on the eye, causing a derangement of the nerves supplying the iris, without any diminution of the sensibility of the retina; and this form may be attended with ptosis. It is a state readily induced by belladonna, stramonium, and other narcotic acrid poisons. Even the internal administration of these plants or preparations, in which they are largely combined, speedily induces an artificial mydriasis which may continue a few days.

I have met this affection more frequently in females, who have been much debilitated from leucorrhœa, long lactation, &c.

*Treatment.*—Improvement of the general health, by good diet; thorough hygiene, alteratives and tonics is indispensable for success; for the special treatment, subcutaneous injections of strychnia, near

the eye, local stimulants, such as aconite or veratrum, applied near the eye.

Counter-irritation, dry cupping along the upper portion of the spine. A pill composed of capsicum, macrotin, scutellarin and cypripedin is most excellent. A solution of the calabar bean dropped into the eye, and given internally in alternation with the above pill, answers well. If this remedy is not at hand, a solution of morphia dropped into the eye, and ergotin internally, may be substituted.

Electricity and nerve stimulants generally are good remedies. If the retina is sound, which will be known by the perception of light, and by vision being improved by looking through a small aperture in a piece of blackened card, the best remedy is the application of the sesqui-carbonate of potash to the cornea, followed by the vapor of the calabar bean, or a solution, if the necessary apparatus is not on hand. When the mydriasis continues for some time, the patient becomes accustomed to the influx of light, and is less annoyed by it; but vision does not improve to a corresponding extent. It may be assisted by convex glasses, or, in extreme cases, a weak convex glass may be covered with dark paper, except in a small circular space at the centre, so as to cut off all the lateral rays, which requires most refraction, and give rise to an indistinct image.

TUMORS OR CYSTS growing upon the iris must be removed if they become large, so as to interfere with vision, or to inflame the eye by their pressure. A section of the cornea must be made as for extraction of cataract, and the diseased part of the iris having been drawn out, must be snipped off.

INFLAMMATION OF THE CAPSULE OF THE CYRSTALLINE LENS.—There is not much external redness. The iris is slightly or not at all discolored, though, perhaps, dull-looking, the pupil bordered by a fringe of uvea, is somewhat contracted, irregular in form, and either fixed or very sluggish in its movements. On close examination, patches of opacity, some of them tinged, of a brown color, may be seen on the anterior wall of the capsule, with minute vessels terminating in them. If atropia is applied, the pupil yields to the influence, and the few vessels previously seen coming from before, are discovered to be seen coming from behind it, are discovered to be derived from a looping network on the crystalline, forming an interrupted circle concentric with the pupil.

Between these bands of network, vascular bands of adhesions may extend, preventing free dilation of the pupil. There is also pain in the eye and head, little intolerance of light; muscæ-volitantes disturb the patient.

*Treatment.*—The general treatment by counter-irritation, alteratives, cathartics, belladonna, in the early stages, and tonics in the later stages, are the remedies which suggest themselves; but their employment must be regulated and modified to the exigencies of the case.

## CATARACT.

This term should be limited to opacity of the crystalline lens or its capsule, whereby the rays of light are, in a proportionate degree, intercepted on the way to the retina, and vision is thus impaired or reduced to a mere perception of light and shade.

Before examining any patient with suspected cataract, the pupil should be dilated with atropia, and then, if there be cataract, there will be seen an opaque body, of a gray, bluish-white or amber color, behind the pupil; objects appear as if surrounded by a mist, or as if a cloud was interposed between them and the eye; and that sight is better in the evening, or when the back is turned to the light, or after the application of atropia—obviously because the pupil, being dilated under these circumstances, permits more light to pass through that part of the lens which is yet transparent. Besides these evidences of cataract, we have the *catoptric test*; that is, the mode of examination of the eye by the reflection of light. When a lighted taper is moved before the eye of a healthy person, three images of it may be observed.

1st. An erect image, that moves upwards when the candle is moved upwards, and that is produced by reflection from the surface of the cornea.

2d. Another erect image, produced by reflection from the anterior surface of the crystalline lens, which also moves upwards when the candle is moved upwards.

3d. A very small inverted image, that is reflected from the posterior surface of the crystalline lens, and that moves downwards when the candle is raised upwards. In cataract, this inverted image is from the first rendered indistinct, and soon abolished; and the deep, erect one is soon abolished also.

*Causes.*—Cataract is sometimes attributable to inflammation, and may be caused by wounds or other injuries of the lens. Impaired nutrition, hereditary predisposition, is an exceedingly common cause; it is also an accompaniment of some diseases, as diabetes.

*VARIETIES.*—**HARD CATARACT.**—This is the form that is generally met with in the old. The lens is shrunk and hard; amber yellow in the centre, gray towards the circumference. There is an appreciable interval between the lens and iris.

**RADIATED CATARACT.**—In this form, the opacity commences in streaks at the circumference, which, as the disease advances, slowly converge towards the centre.

**SOFT CATARACT.**—When of the consistence of cheese or cream, and of a grayish blue or pure white tint. This is the usual form of congenital cataract.

**CAPSULAR CATARACT.**—Opacity of the capsule occurs in specks or streaks, with opaque intervals.

**CAPSULAR-LENTICULAR CATARACT** is very common. Opacity of the capsule is always followed by opacity of the lens.

*Treatment.*—The cataract must be removed by operation. No other treatment is of any avail.

It is a good rule not to operate whilst the degree of vision is sufficient

for ordinary purposes; more particularly, if the patient is very old or feeble, or if one eye is already lost, because a failure of the operation would entail total blindness. The patient might assist vision by dropping in a few drops of solution of atropia, and defer the operation till blindness is complete.

*Prognosis.*—This will be favorable, if the patient is in good health, of a spare and temperate habit; if the iris moves freely, and if the retina seems perfectly sensible to light. On the other hand, it will be doubtful if these are signs of vascular disturbance in the eye or head, if the iris is motionless or altered in color, or if it is adherent to the capsule, or if the cataract is complicated with amaurosis, synchysis or glaucoma. Before operating, the patient should be put in as perfect a state of health as possible. The bowels cleared, the secretions regulated, tonics administered; and the operation should be performed in mild weather.

There are three methods of operating: *extraction*, *depression* or *couching*, and the *operation for causing absorption*.

The local treatment, then, previous to operating for cataract, consists in the production of such a dilatation of the pupil as will enable the physician to obtain a good view of the lens, diminish the risk of wounding the iris, and admit the free access of the aqueous humor, if the operation of absorption is selected.

Another step in the treatment of cataract, previous to operating, is the application of a bandage to the eye opposite to that which is to be operated on, as it tends very materially to steady the eye, if there is any vision, especially in children.

The position of the patient, of the operator, and of the assistant, together with the period at which the operation should be performed, and the kind of operation to be selected, may also be placed under the same head, and be briefly referred to at present.

The position of the patient and the surgeon depends very much upon the kind of operation to be performed. For extraction, the recumbent posture of the patient is the best, as it adds to his safety by diminishing the tendency in the humors of the eye to escape through the opening in the cornea; but, in the operations of depression or absorption, it will generally be found more convenient to place the patient on a moderately low chair, with a side-light, and let the operator sit directly before him, on a higher stool or chair, without arms, so as to be at perfect liberty in his movements. Some operators prefer a stool, on which they place the foot of the same side of the operating hand, resting the elbow on the knee thus raised. Such a position is, however, purely a matter of convenience, and one which, to many, would prove exceeding embarrassing. If the surgeon's hand requires such a support to steady it, prudence should suggest that he had better lay aside his instruments. When an anæsthetic is administered, of course the position of the patient must be the horizontal one, with the head moderately elevated.

The position of the assistant should be behind the patient, with one hand placed under the patient's chin, so as to steady the head against his own breast; while the pulps of the index and second or ring finger



of his other hand should be brought to the same length, and to the same level, so as to raise the lid, by drawing the tarsal cartilage toward the superciliary ridge, where it should be retained until the surgeon directs its release. If the eyelid is moist and difficult to hold, the assistant should dry it thoroughly, or touch the points of his fingers in a little flour or other dry powder, previous to seizing the lid.

The period at which cataract should be operated on, was once deemed a matter of importance, both as respects the season of the year, and the age, ripeness or perfection of the opacity in the lens; but any season, with fine, clear weather, will answer, while the best period, in reference to the maturation of the cataract is, that when its presence in both eyes is well ascertained. The existence of opacity being once well settled, it is best not to wait for the entire loss of vision, or perfect maturation of the cataract, as every week, after a well-marked opacity is evident, is liable to increase the density and toughness of the diseased structure, and, consequently, add to the difficulty and risks of the operation.

We have seen that *three* kinds of operations are performed for the removal of cataract, to wit: *extraction*, *absorption* and *depression*, the selection of either one being usually decided by the following facts:

*Absorption*, depression, or reclination, are attended with but little risk of the loss of the eye, and may be repeated as often as necessary. They are well adapted to soft or hard cataracts, in which the anterior chamber of the eye, and the eye itself, are small. Depression of a hard cataract is liable to produce retinitis, and consequent blindness; while not unfrequently a lens, when depressed, will rise again into the axis of vision. Extraction is an operation peculiarly calculated for hard or firm cataract, but requires considerable dexterity on the part of the surgeon and his assistant, as well as a large, prominent eye, with a full anterior chamber, on the part of the patient. Linear extraction is a modification of extraction specially adapted to soft cataracts. Of these operations, extraction is the more prompt and brilliant; absorption, depression or reclination the safer.

OPERATIONS.—The operations for cataracts are, as has just been stated, divided into three kinds: *Absorption*, or that in which the lens is dissolved by the action of the aqueous humor; *depression*, in which it is pushed below the axis of vision, and lies buried in the vitreous humor; and *extraction*, in which it is promptly removed from the eye. Reclination is a modification of depression.

OPERATION BY ABSORPTION.—The success of this operation being due to the power possessed by the aqueous humor of dissolving the lens, the object of the operator should be to lacerate it and its capsule, and throw them forward into the anterior chamber of the eye. The preliminary steps, in all the operations, are very much the same, as respects diet and the dilatation of the pupil; it is, however, of more consequence in extraction to obtain a full dilatation of the pupil, not only in order to admit the free action of the aqueous humor upon the lens, but also to protect the iris from injury, and enable the ope-

rator to see exactly what he is doing. The needles required for cutting up the lens and its capsules are very varied.

The pupil being dilated, one eye bandaged, and the head supported against the breast of the assistant, or else the patient lying down, the surgeon should depress the lower lid with the index and second finger of the hand corresponding with the eye to be operated on, and the assistant at the same time elevate the upper lid, as directed in extraction; or, if the operator is dexterous, he may sustain both lids himself, by separating them with his thumb and forefinger. Then, seizing the handle of the needle (*Fig. 53*) between the thumb, fore and second finger of the hand opposite to that of the eye to be operated on, and holding the instrument like a pen, with the fingers strongly flexed, and the little and ring finger resting against the cheek-bone, present the point of the needle perpendicularly to the sclerotic, with its convexity upward, and its edges transverse, one or two lines behind the circumference of the cornea, and about half a line above or below the median line of the ball, so as to avoid the long ciliary artery.

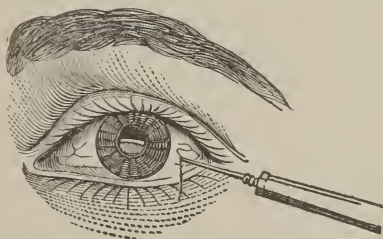


Fig 54. 

Being satisfied with its position, and while the patient is looking towards his nose, puncture the sclerotic, and rotate the handle of the instrument a quarter of a circle between the fingers; then, turning the concavity of its point backward, pass it toward the centre of the eye, and depress the handle toward the temple. When the point, dexterously managed, has reached the centre of the pupil, turn the cutting edge of the needle to the cataract, and cut the capsule and lens into several fragments, throwing them forward into the anterior chamber, where they will subsequently disappear by dissolution; or they may be removed by linear extraction.

If the cataract is soft and milky, one operation will generally suffice, but if the lens or its capsule is more resisting, it may become necessary to repeat the operation several times, at intervals of a few weeks.

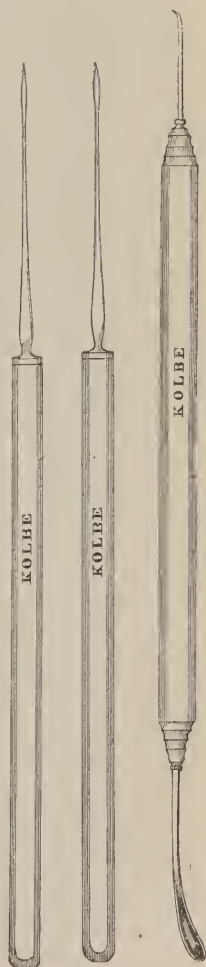


Fig. 53.

OPERATION BY DEPRESSION OR COUCHING.—The preliminary steps of this operation being precisely the same as those required (*Fig. 54*) in absorption, a repetition of them is unnecessary.

*Operation.*—The position of the patient being either sitting or recumbent, and that of the surgeon being the same as in the preceding operation, the needle should be introduced into the sclerotic about two (*Fig. 54*) lines behind the cornea, and passed directly (*Fig. 54*) to the centre of the pupil, between the iris and the capsule. Then, depressing the handle, cause the point of the instrument to apply itself on the top of the lens, and depress it backward and downward, by elevating the handle and carrying it slightly forward. After placing the lens in the vitreous humor below the axis of vision, retain it there a few seconds and withdraw the needle, by reverse movements, through the sclerotic, with its convexity forward.

If the lens rises before the needle is removed, it must be again depressed; and if it escape into the anterior chamber, and cannot be drawn back, it may be removed by the section of the cornea, as in the operation for extraction.

*Extraction.*—The operation of extraction is particularly suited to the cases of hard cataract in adults, with prominent eyes, and to operators who possess a perfect control of their fingers. The assistant must also be one perfectly familiar with his duty. He should place himself behind the patient, and elevate the upper lid, either with his fingers placed as before directed, or by introducing Pellier's speculum beneath the lid, drawing it directly upward, making himself sure that the lid cannot escape from his grasp, and yet holding it so as to avoid pressure upon the eyeball, after the section of the cornea. The operation is arranged in three parts: incision of the cornea, laceration of the capsule, and extraction of the lens; although occasionally the first two are performed at the same time. The incision of the cornea may be performed either at the superior, exterior, or inferior portion of its circumference.

*Operation of extraction.*—The propriety of dilating the pupil previous to extracting cataracts is a question not positively settled, its advocates claiming extra safety from wounds of the iris by the knife, and its opponents charging it with exposing the patient to the sudden loss of the vitreous humor. Although its dilatation certainly renders the iris more secure, yet I think a dexterous operator would probably prefer operating without dilatation, as the iris would be but little exposed to injury from a knife properly managed. The general preliminary measures being, however, completed in accordance with the views of the surgeon, the operation may be performed as follows, varying the line of the incision according as it is wished to perform the superior, exterior, or inferior section. The former being the best, may be taken as the type.

The surgeon, either sitting or standing, and being either in front of or behind his patient, according as he is ambidexter, or operates only with the right hand, should elevate the lid by the index and second finger of his left hand, separating them, and pressing their pulps

against the sides of the eyeball, if it is necessary to steady it. Then holding the knife (*Fig. 55*) by its handle, with the thumb and fingers flexed, as in the downward motion of the pen, (*Fig. 56*), and resting the ring and little finger upon the cheek-bone, if desirable, to support the hand, let him insert the point of the knife perpendicularly into the cornea on its temporal side, about half a line from its circumference, or line of junction with the sclerotic, and, making sure that the point of the instrument penetrates the entire thickness of the cornea, and enters the anterior chamber of the eye, and that it has not passed between its lamina, pass it parallel to and in front of the iris, in the line of the transverse diameter of the eye, over to the internal side of the cornea. If this is steadily and quickly done, the entire section of the cornea will be readily accomplished, simply by the width of the knife.

The assistant should now be directed to allow the lids to close. After a few seconds rest, they may be gently wiped and opened as before, great care being taken to avoid pressure on the ball. Then the surgeon, while elevating the lid, should press very gently against the ball from below upward, so as to render the lens prominent, or introduce the back of the little knife attached to Daviel's eurette, beneath the edge of the corneal flap, and press its point against the capsule of the lens and lacerate it. Generally, the lens escapes promptly, in consequence of the compression of the ball by the muscles of the eye. If it does not, moderate pressure against the ball with the handle of the eurette, or seizing the lens with the forceps, or with the eurette, will facilitate it; but in all these movements great caution must be exercised lest the vitreous humor also protrude. The operator should then see that the iris has not prolapsed or been caught between the flap and the edge of the cornea; and, being satisfied that all is right, let him at once close the eye, and cover it with a light bandage, so constructed as to exclude the light, without pressing upon the ball.

*After-treatment.*—The after-treatment must be regulated by circumstances, though generally it should be strictly antiphlogistic, the patient being directed to keep cold cloths applied over the lids of the affected eye; to remain quiet in a dark room; to take nothing but

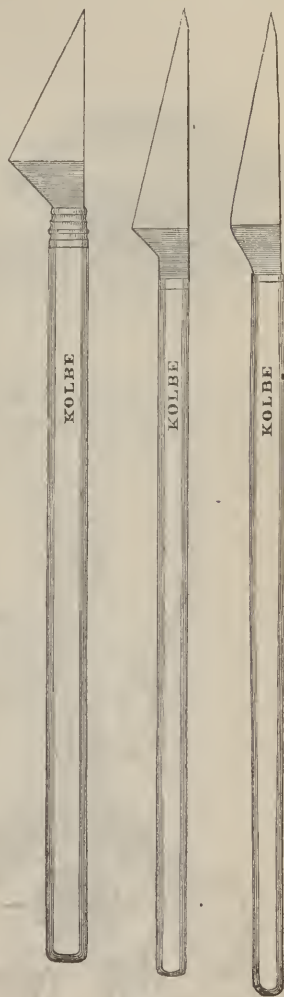
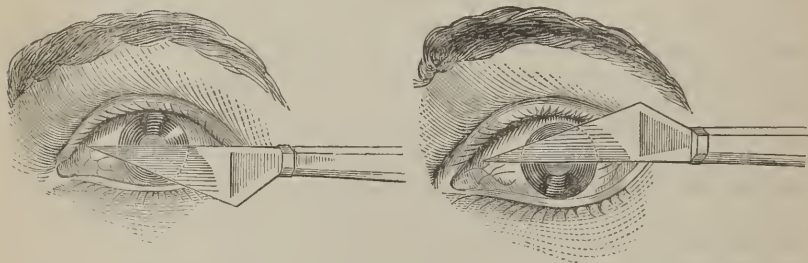


Fig. 55.

CATARACT KNIVES.



liquids for food, and to avoid conversation for the first three or five days. In most cases, it will be found advantageous to keep the lids fastened by five little strips of adhesive plaster for a day or two, in order to prevent derangement of the wound by the motion of the lid, especially in intractable patients.



The performance of the inferior and exterior sections of the cornea are so similar to that just detailed as not to require a special description.

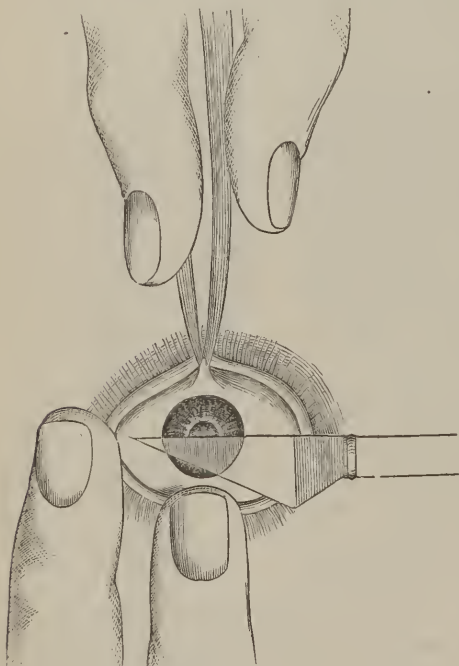


Fig. 56.

*Linear extraction.*—A valuable modification of the operation of extraction, embracing some of the steps of the operation of absorption, and specially adapted to such cataracts as can be cut into fragments, is now gaining professional favor as being less tedious than the operation of absorption, and less hazardous than that of extraction, to most surgeons.

Introduce a fine needle through the cornea, divide the capsule and lens, and throw the largest fragments into the anterior chamber. Then, with a fine cornea knife, enlarge the opening made in the cornea by the needle and introducing a curette or small scoop into the anterior chamber through the corneal opening, which

should not surpass two lines in length, remove the fragment without disturbing the capsule.

*Treatment after operation.*—After any of the operations, the room should be darkened, and the eyes kept under the influence of atropia. A wet compress and bandage may be applied. He should be put to

bed, his head and shoulders somewhat elevated. An anodyne should be given, and if there is reason to fear that he might wince his eyes during his sleep, he should be watched.

If any febrile symptoms exhibit themselves, compresses, constantly wet with cold water and aconite and belladonna, should be applied. Purgatives are not desirable; the patient should be disturbed as little as possible. His food should be liquid, not requiring mastication.

**CATARACT GLASSES.**—After the loss of crystalline lens, it is advisable to compensate for its absence by a cataract glass of proper focal power. It is true that some persons see large objects with tolerable distinctness without such extraneous aid, but they are generally benefited by employing a glass of suitable strength—one for reading and seeing minute objects, another for distant objects.

The glasses for distinct objects may be worn at all times, but those for fine work, no longer than they are needed.

Cataract glasses should not be given to the patient till the operation has been fully recovered from, and the eye has had time to conform itself to its new condition. The patient's vision is then to be carefully treated with glasses of different foci, and as the eye gains strength, and is able to see well with less power, the change should be made in that direction.

## GLAUCOMA.

Glaucoma is a name applied to a peculiar disease of the eye, in which it presents a greenish appearance, deep behind the pupil, changing its seat according to the direction in which the light is admitted, being always most concentrated on the side opposite the light. This appearance occurs in very different degrees, from a greenish reflection barely discernible to a grass-green opacity. It usually comes on slowly, requiring years before it involves the structure of the eye so as to produce complete loss of vision; in other cases, these changes take place in a few months.

The causes of glaucoma are obscure, as is also its pathology. It was formerly supposed to be dependent on a turbidity of the vitreous humor; dissection and the ophthalmoscope, has shown that this opinion is not correct; but that the organization of all the central portions of the eye is impaired.

Hypersecretion of vitreous humor, causing great distention, and terminating in extensive disorganization of the retina, choroid, and iris, opacity of the lens, cloudiness of the cornea.

The greenish discoloration which appears deep in the eye, is owing to the deficiency of black pigment, partly to the change of color in the lens which reflects the light of a greenish color, and obstructs the other rays.

The disease seldom occurs before the middle period of life, and in our own Atlantic cities is rare, but common in the far west.

*Symptoms and Diagnosis.*—The symptoms are very variable. In acute cases there is more or less sudden accession of deep-seated, tensive pain in the eyeball, which is seen to be somewhat injected,

and is hard, when pressed upon with the fingers. He complains of gradually increasing dimness of sight, with more or less rheumatic pain over the eyebrow, visions of black spots, flashes of light. The pupil is dilated—moves sluggishly. It may be distinguished from cataract by the *greenish color*, indistinct nature of the opacity, it being seen deep in the eye; whereas, in cataract, a definite whitish opaque body is seen immediately behind the pupil. The opacity disappears in glaucoma when looked at sideways, which is not the case in cataract. Vision is assisted by a strong light in glaucoma, but the reverse in cataract. If the eye be examined by means of the reflection of a lighted candle, the inverted image, which is soon obliterated in cataract, is distinctly perceptible in the earlier stages of glaucoma although not in the latter stages. The deep, erect image, however, continues more distinct even than in the healthy eye; whereas, it is absent in cataract. For a time, the eye may continue sensible to objects placed to one side or the other of the patient, while in every other direction, nothing is distinguished. In a later stage, the crystalline lens becomes opaque, and passing forward through the pupil touches the cornea, which being irritated, ulcerates and gives way, permitting the escape of more or less of the contents of the eye, which becomes shrunk and atrophied.

*Prognosis.*—In this disease, the prognosis is highly unfavorable; but in the early stages, prompt treatment often does good.

*Treatment.*—Among the old school, we have it laid down that no treatment is of use, but in our hands, an active alterative course has, at the commencement, often proved successful, but such must be combined with a tonic course to prevent debility. The podophyllin pill, with C. syr. stillingia and bromide of potassium, alternated with muriate of gold, and as a tonic, bark and hydrastis answers well. The skin should be stimulated to action by the Turkish bath, once a week; the alkaline bath daily. In the acute affection these things should be thoroughly used. Rest to the eyes is of essential importance, and to remove excitation, we would use the irritating plaster. Any febrile symptoms should be controlled by the internal use of aconite, belladonna, gelsemín.

Three operations are in use for the relief of glaucoma, two of which may be employed in the early stage of the disease. They are, first, iridectomy, or the removal of a portion of the iris, either by an incision through the cornea or sclerotic; and, secondly, the division of the ciliary ligament or muscle. The third, extraction of the lens, which has not been successful.

## AFFECTIONS OF THE CHOROID.

*INFLAMMATION OF THE CHOROID.*—Inflammation of the choroid is not a common disease, and when it does occur, is accompanied by so much inflammation of the retina itself, that it becomes nearly impossible to recognize it as a distinct disease. But a passive form of inflammation is observed by the ophthalmoscope, generally met with in strumous females.

*Symptoms.*—It commences with intolerance of light, dimness of vision, with pain in the eyes, eyebrow, forehead and lachrymation. The conjunctiva is not uniformly red, but one or more enlarged vessels are seen to proceed from the back part of the eye, and to terminate in a vascular zone partially surrounding the cornea; the pupil is often displaced and brought to the affected side of the choroid. If it proceed, the sclerotic becomes thin and blue, showing the choroid through it; a watery fluid is effused between the choroid and retina, causing the thinned part of the sclerotic to bulge out, and, finally, the cornea may become opaque, the eye protrude from the socket, and the whole globe suppurate.

Another form of choroiditis has no tendency to exudation, but terminates in atrophy of the choroid with adhesion to the sclerotic. It is usually attended with extensive alterations of other portions of the eye, which increase with the advance of the disease, and is uninfluenced by treatment.

*Treatment.*—Thorough secretion and excretion, cupping the temples, nape of the neck; podophyllin and irisin, alternated with chloride of gold, the application of Firminch's method of counter-irritation, followed by the application of the veratrin ointment; the alcoholic vapor bath so as to excite thorough secretion from the skin, and it must be repeated daily. Follow this with energetic alteratives, such as the stillingia alt., and iodide of sodium, and such tonics as iron, quinine, hydrastin are of service. When the sclerotic becomes much distended, the instrument being introduced for one-eighth of an inch towards the centre of the eye, so as not to wound the lens.

**HEMORRHAGE FROM THE CHOROID.**—Sudden, partial or total loss of vision is sometimes occasioned by rupture of a vessel in the choroid, and effusion of blood between this tissue and the retina. When caused by some violent effort, without previous disease of the choroid, the effusion may be absorbed and vision restored. Rest, and the exhibition of five grain doses of the iodide of potassium, three times daily, is all the treatment called for.

**SYNCHYSIS.**—This is an unnatural fluidity or softening of the vitreous humor, and may exist without serious alternation of vision. It is to be suspected when the iris has a marked tremulous motion to and fro, shaking backwards and forwards like a rag in a bottle of water; the retina becomes insensible, and the lens opaque. This affection is sometimes the result of wounds, and sometimes comes on without any obvious cause. Some suppose it to depend on a slow inflammation. From whatever cause, softening or fluidity of the vitreous humor is accompanied by other changes in the eye and loss of sight; the eyeball being soft when pressed upon.

**HYDROPTHALMIA.**—Dropsy of the vitreous humor, or dropsy of the eye, properly depends on a slow inflammation of the inner tissues of the eye. It may be distinguished from conical cornea by the more uniform enlargement of all the anterior parts, or of the whole globe. It is not common; seems to prevail in families. It invariably causes enlargement of the globe, with loss of sight, and constant excruciat-



ing pain, only to be relieved by puncturing the sclerotic with a needle.

The prognosis is quite unfavorable; the disease being seldom more than retarded in its course, and terminating in abolition of all useful vision, if it does not even go on to bursting of the cornea, and collapse of the globe. A slight degree of this affection is often perceived after corneitis, or other inflammations; but the disposition to increase is present only to a slight extent.

Great care should be used to keep up the general health of the patient; and all use of the eyes on minute objects should be avoided. As the cornea grows thin from distension, all violent exercise, shocks, blows, must be guarded against, as instant rupture may occur.

**MUSCÆ VOLITANTES.**—Persons of delicate constitutions, of sedentary habits, who use their eyes much on minute objects, are liable to suffer from dimness of sight; uneasiness on exposure to a strong light; and the vision of floating black specks or streaks, which, from their resemblance to flies, have acquired the name of *muscæ volitantes*.

They seldom appear in the axis of vision; some are semi-transparent and colorless, others are dark and opaque; some minute, twisted, or watery filaments, others in various endless forms. These symptoms evidently depend on weakness of organization, either original or produced by some debilitating cause, or drain on the system, or congestion within the head, or it may be the effect of disordered digestion, mental emotion. The prognosis is usually favorable.

*Treatment.*—If it is due to congestion within the head, there can be little doubt of the value of purgatives, baths, aconite, belladonna, and a thorough alterative course, as well as the foot-bath, with dry cups to the nape of the neck.

But, in the vast majority of cases, an entirely opposite plan of treatment should be followed, such as powerful tonics, good diet, aperients, shower-bathing, electricity, and the irritating plaster along the upper portion of the spine; and great care not to use the eyes too much. In all cases, the mind must be relieved from all care and anxiety, every kind of intense application; and cheerful society, open air exercise, should be inculcated, so as to aid in the recovery of their usual health. The state of the stomach, the bowels, the uterine functions should be looked after. Articles of diet that induce acidity, flatulence, should be avoided; if uterine, senecio, helonin, &c., with iron, will be useful. Immoderate nursing is a frequent cause; this, of course, must be attended to. As a general rule, alteratives, nerve stimulants, tonics. Weakness of sight, with intolerance of light, is very frequently an accompaniment of short-sightedness, and may be recognized by a bashful look about the eyes, the lids of which are half closed, and perpetually winking, and the brow contracted. By some the *muscæ volitantes* are supposed to depend on a distension of the vessels of the choroid; if there is a permanent black spot, it probably deepens on a permanent varicosity of some branch.

**DOUBLE VISION.**—Vision of two objects is not uncommon as a symptom of paralysis of one or more of the muscles of the globe, where it is attributable to the loss of correspondence of the axis of the

two eyes; but it may also occur where there is no apparent deviation of visual direction. It is sometimes impossible for the patient to tell which of the two eyes is affected.

This condition of things is most common among the debilitated after fevers, after exhausting duties. The prognosis is favorable where the symptoms do not depend on organic change.

**SPECTRAL ILLUSIONS.**—Patients are often afflicted with spectral illusions; mental or bodily depression favors the occurrence of this phenomena. The symptoms disappear on an improvement of the general health.

## AFFECTIONS OF THE RETINA.

Before the invention of the ophthalmoscope, numerous cases of enfeebled or lost vision were but imperfectly understood; but now that that instrument has revealed all these changes in the retina and optic nerve, we have clearer views of the subject.

**INFLAMMATION OF THE RETINA.**—Acute retinitis, uncomplicated with inflammation of other membranes of the eye, is exceedingly rare; and it is principally some of its passive forms which are now detected. The retina, however, must, of necessity, be more or less involved in any inflammation which affects the deeper structures of the eyeball; but, in some isolated cases, it appears to be the original seat of inflammation. There are three forms of retinitis recognized: the acute, subacute and chronic.

In the acute form, the symptoms are severe, deep-seated and throbbing pain in the eye, extending to the temples and head; vision rapidly impaired, or even altogether lost; frequent sensations of flashes of light, with great fever and delirium. The pupil gradually closes, the iris loses its brilliancy, and the sclerotic is highly vascular and rose red. If unrelieved, the whole globe may suppurate.

In the subacute form, dimness of sight, headache or giddiness, flushed countenance and fever; the pupil soon becoming motionless, and the iris turbid.

In the chronic form, we have gradually increasing dimness of sight, visions of black spots and flashes of light, irritability of the eye, intolerance of light, tenderness of the eyeball and of parts around; but the patient, although he may shade the eye, does not always shut it. These affections are distinguished by the circumstance that dimness of sight and intolerance of light occur before redness, or any external sign of inflammation.

**Causes.**—Exposure to vivid light, flashes of lightning, strong fires, the reflection of the snow and sun, and the like, or habitual exertion of the eye in minute objects, together with neglect of exercise, constipation, over-indulgence in food or drink.

**Prognosis.**—This is not unfavorable, if a proper treatment be commenced early, before the pupil is contracted, or the power of vision greatly lessened. If vision seem extinguished, the prognosis is unfavorable.

**Treatment.**—Complete rest of the eyes and of the whole body,

darkness, and active, thorough treatment. Full doses of aconite and belladonna, with dry cupping to nape of the neck, behind the ears; follow with podophyllin and jalapin. Alteratives should be at once resorted to; atropia should be applied to the eye.

The chronic form of retinitis is most common among watchmakers, tailors, milliners, mathematical instrument makers, printers, engravers, and those whose occupation leads them to have their eyes excessively fatigued. The eyes should be spared; country air and gentle exercise should be resorted to.

**APOPLEXY OF THE RETINA.**—Hemorrhage may occur from rupture of a retinal vessel, previously weakened by congestion, and has also been observed in the form of minute effusions from a number of points. The blood thus poured out may be absorbed, and vision re-established. Every measure calculated to keep the blood from the head should be resorted to.

We also meet with cases of anemia of the retina, a diminution or obliteration of the retinal vessels, and atrophy of the papilla of the optic nerve. Very little can be done in the way of treatment.

Fatty degeneration of the retina is sometimes met with in connection with Bright's disease of the kidney. Partial vision is retained for a long period.

## AMAUROSIS.

Amaurosis is impairment or loss of vision from disease of the optic nervous apparatus, or it may be defined as imperfection of vision, depending on some change in the retina, optic nerve or brain.

*Varieties.*—Amaurosis is said to be complete, or incomplete, or functional and organic; the former depending upon some sympathetic or other disorder, which does not primarily affect the structure of the nervous apparatus of the eye; the latter, an organic disease.

*Causes.*—Very different efficient causes operate in the production of amaurosis. In some cases, the cause is of a local, direct and mechanical nature,—such as a tumor or aneurism, pressing on the optic nerve. In others, it may be due to plethora, or congestion of the brain or blood-vessels of the eye. It may be due to some constitutional cause, as exhaustion. Anything that over-stimulates and exhausts the retina; long-continued exertion of the eye on minute objects, glaring light, combined with heat, and any of these exciting causes, are particularly aided by intemperance, stooping, tight neckcloths, too much sleep in bed, and anything capable of producing a determination of blood to the head.

Amaurosis may be a consequence of organic change, inflammation, concussion, compression from extravasated blood, fractured bone, morbid effusion, whether affecting the brain, optic nerves or eye.

*Diagnosis.*—Glaucoma is often mistaken for amaurosis, from the circumstance of its being always attended with some of the symptoms of the disease; but the apparent greenness of the humors, the hardness of the eyeball, are sufficiently remarkable to distinguish it from amaurosis. Amaurosis is to be distinguished from cataract by observ-

ing that, in cataract, an opaque body can be seen behind the pupil, and that the impairment of vision is in proportion to the extent of the opacity; whereas, in pure amaurosis, the pupil either shows its natural color, or else a deep-seated greenish discoloration. That, in cataract, vision is simply clouded,—that a lighted candle seems in a cloud; whereas, in amaurosis, objects are discolored, perverted in shape,—that a lighted candle seems split, or lengthened, or iridescent; that *muscæ volitantes* is not present in pure cataract. That is, cataract vision is better in a dull light; it is the reverse in amaurosis. That, in cataract, a patient can always discern light from darkness; whereas, in confirmed amaurosis, there is a peculiar, fixed, vacant stare,—the eyeball is prostrated and motionless. That, in pure amaurosis, the three images of a candle are as distinct as in the healthy eye, which is not the case in cataract.

*Symptoms.*—In a large proportion of cases there are no symptoms of disease, either of the brain or eye, further than a gradual loss of vision, it seeming as if a film was slowly forming before the eye. In other cases, the loss of sight is sudden and more or less complete; while, in another class of cases, the loss of vision is gradual, and attended with cerebral disturbance, or symptoms of disease of the brain. Sometimes it seems to attend derangement of the stomach, or some excessive drain, and it may begin as an indistinct vision, or object, appearing double; or one-half of them only being seen; or crooked, disfigured or patched.

The patient cannot estimate distances. Occasionally there will be ocular spectra, *muscæ volitantes*, intolerance of light, a feeling as if objects were not perfectly illuminated.

If we examine the eyes closely, we will find the pupil more or less dilated; slightly susceptible to the influence of light. The patient walks with an uncertain gait; his eyes have a vacant stare, &c., &c.

*Prognosis.*—The early stages of the disease is amenable to treatment, but, later, there is scarcely any disease that is so hopeless. If the case is recent, and the cause can be removed, even although there be total loss of sight, a cure is not unfrequent; but, in confirmed cases, it rarely happens that much improvement takes place, even under the best directed treatment.

*Treatment.*—In the treatment of amaurosis, it will give us a clearer idea of its indications to classify the affection under one or other of the following heads, to wit: *Inflammatory; atonic; sympathetic, caused by poisons; by organic disease.* The leading indications are—to rectify any disorder, any want of equilibrium in the system; to counteract any debility, by tonics; to neutralize any determination of blood to the eye or brain, by the appropriate means; to stimulate and restore the excitability of the retina.

**INFLAMMATORY.**—If amaurosis be attended with inflammatory symptoms, if it follows a blow or injury, or a flash of lightning; or if the patient has been using the eye excessively by gas light; if there is great plethora, headache, giddiness, turgid, red countenance, hot skin and hard pulse, frequent flashes of light, or streams of red hot balls



seen before the eyes; or if the amaurosis has followed a suppression of any accustomed evacuation, such as the suppression of the menses, from cold, or the sudden suppression of perspiration, or the drying up of an old ulcer, or if it in any way partakes of the inflammatory type, the treatment must be vigorous. We must give aconite and belladonna freely; we must resort to free and frequent purgation, by means of podophyllin, jalapin and colocynthin; we must have counter-irritation, active, thorough, and perseveringly done; dry cupping, the alcoholic vapor-bath daily, thorough friction to the surface, and a mustard foot-bath every evening. Then follow with remedies calculated to create a change, an alterative effect; such remedies as muriate of gold or platinum, in alternation with our concentrated alteratives. Menispermic and irisic seem to promote the removal of effusions within the cranium, and sometimes even of morbid formation. After removing the amaurosis, a course of tonics, exercise, hygiene, should be adopted; counter-irritation should be actively kept up.

ATONIC AMAUROSIS may come on at the close of some long and exhausting illness, or may be produced by great loss of blood, menorrhagia, immoderate nursing, leucorrhœa, or any debilitating circumstance. This form is distinguished by its being attended with general debility, anemia, frequent, trembling pulse, dilated pupils; and the patient usually sees better after nourishment, and in a strong light.

*The treatment* here will consist in suppressing any habitual discharge or source of exhaustion, and toning the system, with change of air, tonics—as hydrastin, cinchona, iron—and good diet. If it seems tedious to yield, tonics with alteratives, with counter-irritation behind the ear and nape of the neck. In addition to the remedies enumerated, nux vomica, electricity, and, as more decided tonics, sulphur, phosphorus. At the same time, the abdominal secretions should be well regulated by leptandrin and juglandin, and the cutaneous circulation should be excited by exercise, by the lye-bath, shower-bath. Stimulants are often of utility—cypripedin, scutellarin and xanthoxylin. If it is connected in any way with epilepsy, camphor, arnica and gelsemin make a good combination; belladonna and nux combined, are of utility. In this form of amaurosis local stimulation is of utility. The cephalic snuff, powdered bayberry and capsicum, snuffed up the nostrils; or throwing the vapor of a certain class of stimulants up the nostrils; or a spray of medicated vapors against the globe.

Stimulating vapors, directed against the eyes, are sometimes of utility; such as the vapor of sulphur, or ammonia, or diluted mineral acids; cataplasm of capsicum and vinegar to the temples. Strychnine in solution, in the form of a subcutaneous injection; friction to the forehead with the veratrin ointment, or aconite and veratrin, or some powerful stimulant.

SYMPATHETIC.—Amaurosis not unfrequently supervenes after some diseases, such as some disease of the liver or other viscera, worms. The cause must be removed if possible. If due to congestion of the head, dry cupping, the vapor-bath, unlock the secretions freely, but not drastically. If worms are suspected, give santonine, turpentine, male

fern, oil of pumpkin seed, &c. If it arise from irritation of the fifth pair of nerves, if it follow a wound on the forehead, it should be dilated and healed; tumors and carious teeth should be removed.

**FROM POISONS.**—Amaurosis is liable to follow the administration of certain remedies, as gelsemin, belladonna, stramonium, tobacco, alcohol. If the amaurosis persist, after the ordinary effect of the poison has been got rid of by the usual measures, emetics of the C. powder of lobelia, counter-irritation, electricity, subcutaneous injections of strychnine, attention to the secretions, and alterative course is the best. If it supervene, as an effect of lead poisoning, iodide of potassium, the mineral acids, vegetable alteratives, are indicated.

**ORGANIC.**—These are the most hopeless cases. If the disease has followed sun-stroke, and there is that peculiar condition of the blood present; if to apoplexy or syphilis, or if we have reason to suspect a tumor on the brain, or in the course of the optic nerve, a moderate alterative course, with bathing, friction, counter-irritation, and attention to the general health, should be tried, and may effect a cure. There are numerous other cases of amaurosis arising from organic disease, the treatment of which must be upon general principles. Congestion of the head must be counteracted, the secretions must be maintained, the strength must be watched and kept up by a nutritious but not stimulating diet, and the patient should guard against all excess of mind or body, or anything that is capable of accelerating the cerebral circulation.

## SHORT AND LONG SIGHT.

**MYOPIA.**—This affection consists in a want of distinct vision beyond a short distance, arising from too great refractive power in the eyes. At a certain distance, varying in different individuals, vision is perfect, and even extraordinary good. In short-sighted persons, the cornea is generally exceedingly convex, and the secretion of aqueous humor abundant; and the crystalline lens is probably too convex, all of which circumstances would cause the refractive power of the eye to be increased.

**Causes.**—It is most frequently congenital, although it is easily acquired by allowing children to look on too minute objects, too attentive study, and the like. This defect is not common among sailors or savages, who are accustomed to looking at objects at long distances; on the contrary, the largest proportion of cases are among the studious and literary.

**Treatment.**—The eyes should be exercised, and accustomed to look at distant objects. Where the tendency exists in a child, his studies should be abridged; he should have plenty of exercise in the open air. All field sports are beneficial. In reading, the book should be removed further and further daily, till the patient has acquired the habit of reading at the usual distance. Glasses need not be resorted to if the patient can get along without them; or, if resorted to, might be worn only when really needed. The glasses which are adapted for shortness

of sight are concave; since they tend to disperse the rays of light, and prevent their coming to a focus so soon. But, if the myopia is very decided, and the eyes are weak after any ordinary use of them, it is better to wear them continuously.

Spectacles are to be preferred to eye-glasses, as they retain their place more steadily in front of the eyes. The patient should choose a pair that enables him to see objects within forty feet as distinctly as other people.

**PRESBYOPIA.**—Long-sightedness depends, evidently, on a diminished quantity and density of the humors of the eyeball, through which it becomes flatter, and its refractive powers are diminished. It is one of the earliest signs of impaired nutrition. The patient's sight must be remedied by convex glasses, which should cause minute objects, near the eye, to appear bright and distinct, but not larger than natural.

### STRABISMUS.

Strabismus, or squinting, consists in a loss of that harmonious action in the two eyes, which is necessary to give them a parallel or corresponding direction.

The essential cause of the affection, in most cases, is some change in the action of the nerves which supply the muscles of the globe; a want of adjustment of the visual axis of one eye, in consequence of which it is involuntarily turned aside, in order to avoid the double or distorted vision that would result from looking at objects with two eyes of different powers.

The immediate mechanism by which the squint is produced, is most probably a relaxed or inactive state of the external rectus muscle, so that its antagonistic muscle, the internal rectus, preponderates in force, and draws the eye inward.

Strabismus is most frequently convergent; the eye being turned towards the nose, when the sound eye is looking straight forward. In a small proportion of cases, it is divergent; very rarely the eye is turned upwards or downwards, or obliquely. The degree of variation is sometimes so slight as scarcely to be perceived; in other instances, so extreme that the cornea of the affected eye is hidden from view at the inner canthus.

Vision in the eye implicated, is more feeble than the other; unequal power in the two eyes, may be a cause as well as a consequence of strabismus. In some cases, both eyes are equally affected, but the strabismus alternates, showing itself first in one and then in the other.

**Causes.**—Squinting may be caused by congenital malformation, but the most frequent cause seems to be diseases of childhood, as whooping-cough, convulsions, measles; it may also be caused by bad habits, imitation of persons who happen to squint, looking at pimples on the nose. Opacities of the cornea sometimes give rise to it; it may be caused by using one eye to the neglect of the other; it is sometimes a relic of fevers, exanthemata; it may be induced by irritation, or disorder of the stomach and bowels, teething, worms, constipation; it

may be caused by fright, passion, disorder of the health; or it may be caused by some disorder of the circulation in the brain.

*Diagnosis.*—Strabismus is not to be confounded with the immovable distortion of the eye, occasioned by actual paralysis of some of its muscles. This condition of things may exist when there is a loss of motion, from disease of the brain, or other agencies affecting the motor nerves; or it may be due to a temporary suspension of nervous energy, as in paralysis of the third pair after exposure to cold or exhausting disease.

*Treatment.*—If the squinting be recent, it may be removed by proper treatment. The various functions and secretions should be rigidly attended to; purgatives, diuretics and baths should be resorted to; and if the patient is weakly, bark, iron, C. tinct. tamarac, nux, hydrastin, scutellarin, cypripedin, will be of advantage. I have succeeded in some cases with subcutaneous injections of a solution of strychnine. An endeavor should be made to strengthen and exercise the squinting eye, by covering the sound one with a shade for two or three hours daily; but this must be done with caution. I also am in the habit of instructing my patients to exercise the implicated eye before a glass. The plan I find successful, is to have the patient close the sound eye, and look at a particular point with the squinting one, then let him open the sound eye. Upon this, the squinting eye will diverge, but by patience and perseverance, the patient may educate it, command it, and keep it parallel with the other.

If a child is beginning to squint, it should be watched, and an endeavor made to correct it. A tonic regimen, exercise in the open air, a removal to another situation; and if the sight is short, a pair of shallow concave spectacles should be used; they are often the means of preventing the confirmation of an incipient squint. The use of prismatic glasses, compelling the affected eye to take a different position to avoid confusion of vision, is a means of cure in strabismus. Cases are benefitted by galvanism, by strychnia, cypripedin, scutellarin, &c.

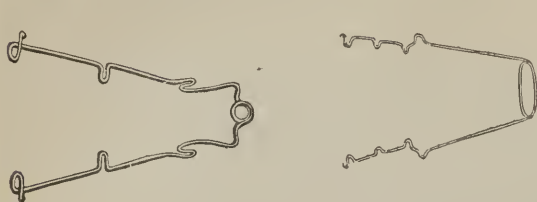
Since the introduction of the operation for division of the affected muscle, all methods of treatment have fallen into disrepute.

*OPERATIONS FOR STRABISMUS.*—The operation for division of the muscle on which the deviation of the eye depends, has proved so satisfactory that it has nearly superseded all other remedial means. It is not to be performed where the strabismus results from causes which are only temporary. When the deviation is slight, an operation on one eye only, is generally sufficient; but where converge is very marked in both eyes, it is frequently necessary to perform a double operation before perfectly harmonious action is recovered. A second operation should not be too hastily performed, as we often obtain excellent results from a single operation.

Close the eye, generally the soundest one, with a handkerchief or bandage, in consequence of which the affected eye becomes straight, if the case is a proper one for the operation. Then, having separated the lids by a speculum, (*Fig. 57*,) seize a fold of the conjunctiva over the muscle, half way between the cornea and the inner canthus, and a



little below the equator of the eyeball, with a pair of good forceps; elevate it, incise it obliquely, not vertically, with a snip of the



curved scissors, (*Fig. 58*;) divide the fascia, if necessary, in the same way; pass a *large* curved hook, having a convexity at least equal to that of the ball, beneath the muscle, from below upward, and divide it with the same scissors. (*Fig. 59*.)

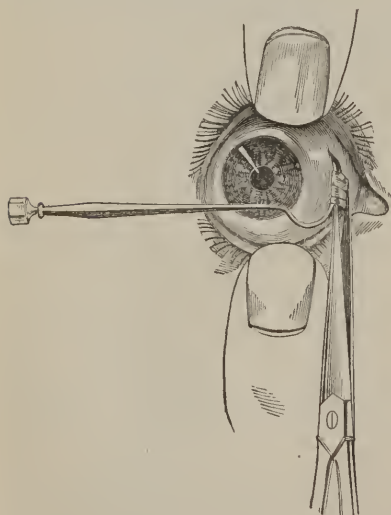
Seizing the conjunctiva in this manner is quite sufficient to steady the eye, and the subsequent steps of the operation are equally simple. (*Fig. 60*.)

When the eyes differ in visual power, the weaker of the two should be selected for operation, in all cases of alternating strabismus. All seasons may be selected for the operation. The patient may sit in front of the operator, or be placed on a table; if it is a child, it should be rolled up in a sheet. If it is desirable to give anæsthetics, as in nervously apprehensive patients, it is better to administer them thoroughly.

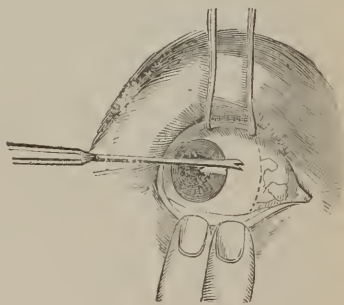


*Fig. 58.*

The operation for the relief of this deformity consists in dividing the shortened or permanently contracted muscle.



*Fig. 59.*



*Fig. 60.*

After the operation, the eye should be protected from cold and light, and any inflammatory symptoms should be met with appropriate measures. It is very rare for any untoward symptoms to follow.

**PARALYSIS OF THE MUSCLES OF THE EYE.**—The muscles supplied by the third and sixth pair of nerves, are those most frequently affected. When all the branches of the third pair are implicated, the eye is drawn outward by the unopposed action of the external rectus, the upper lid droops, and the pupil is widely dilated.

This affection usually depends on cerebral disease, in which case the prognosis would be unfavorable, but it is often induced by other causes, of which I have found exposure to wet or cold the most common. In nearly all the cases where no organic change has given rise to the symptoms, we find the system in a condition below the standard of health. Good diet, tonics, stimulating lotions may be applied about the eyebrows and lids. Aconite and veratrin are useful.

**MALIGNANT DISEASES OF THE EYE.**—After years of supposed inflammation, the eye becomes shrunk and hard, and the conjunctiva tuberculated, thickened and red. The eye is exquisitely tender; there is much burning or *lancinating pain* and severe hemicrania. After a time, ulceration occurs and spreads to the neighboring parts, and the patient sinks.

There are three principal varieties of malignant disease, which attack the eye and its appendages. *Scirrhus*, or *hard cancer*; *medullary*, or *soft cancer*; and *melanosis*, or *black cancer*.

**Scirrhus** is the most frequent form of cancer, found as an infiltration, affecting part or the whole of the lids. The diseased mass is extremely hard, heavy, inelastic. After a variable time, the growth, with the proper tissues of the lids, skin, &c., ulcerates; a foul, excavated, spreading ulcer, with everted edges, from which there is a constant sanious discharge, and very often attacks of hemorrhage. The ulceration extends; the amount of suffering varies; occasionally the pain is slight, but generally severe, lancinating and most exhausting. After a while the system sympathises, the glands become affectionate, the suffering and cadaverous appearance is extreme.

**MEDULLARY, OR SOFT CANCER.**—Medullary, or encephaloid, or cerebriform cancers, are of two kinds—soft and firm—the former being the most frequent. It generally occurs in the eye, as a separable tumor, round or oval, presenting to the touch or sense as of fluctuation of some thick fluid. They are very vascular; the material composing them resembles brain substance, partially decomposed, and partially broken up; they yield abundance of cancer-juice, on being pressed or scraped, and they frequently contain extravasated blood. The most frequent seat of this form of carcinoma, is at the termination of the optic nerve. The eye is accidentally discovered to be blind, and a small tumor can be detected behind the pupil. This gradually advances, and generally appears whitish or yellowish, and lobulated, and more or less streaked with blood-vessels. In a certain space of time, varying from a few months to some years, the cornea bursts before the rapidly enlarging tumor, a bleeding fungus protrudes, the cervical and other glands enlarge, and, if the patient is not relieved, perishes.

**MELANOID CANCER**, or black cancer, is generally medullary cancer, modified by the superaddition of black pigment.

Melanoid matter is often deposited in the proper tissue of the eyeball, or in the orbit, sometimes alone and independent of cancer.

*Treatment.*—Cancer is well understood as a blood disease,—a defect or diathesis in which we have a peculiar abnormal condition of the blood corpuscles, with a tendency to morbid growth. Being essentially a blood disease, all operations have been most unsatisfactory, unless preceded by two or three months active constitutional treatment. [*See Cancer.*]

With regard to the use of caustics in and about the eye, it is certainly not so favorable a part for their general use as other parts of the body, but when they can be applied they are to be preferred. Sulphuric acid, dropped on saffron or charcoal, forms an admirable caustic.

After the excision of a cancerous tumor, a lotion of bi-carbonate of soda, changed repeatedly, is excellent. As a wash, the permanganate of potash will arrest the fetor better than the pyroligneous acid, or chlorine, or baptisin.

When the diseased parts have been removed, the healing process tedious, I change the alkaline poultice and resort to nitric acid lotion, or the permanganate of potash. The cause of failure in nearly all cases is due to the want of rigid constitutional treatment.

Attention to the skin is of primary importance. Bathing daily is essential. I have derived great benefit from the following baths: iodine, sulphur, nitro-muriatic acid, bitter and alkaline, strumatic salts, iodide of sodium. At the same time that we are acting powerfully on the skin, by baths and diaphoretics, diuretics must not be overlooked. As a rule, the function of the kidneys is too much neglected, especially in cases where there is a constitutional taint.

A rather more than natural activity should be kept up. For this purpose we must allow drinks of such articles as are both tonic and diuretic,—queen of the meadow, dwarf elder, parsley, &c., &c.

Alteratives are most essential. The C. syr. stillingia, with the sheep laurel, the C. syr. frostwort, the scrofulous syr. yellow dock.

The corydalis, either in infusions or tincture; the stillingia alt.

Menispermin, and the various concentrated alteratives, exert a powerful influence in removing constitutional taint, and are, perhaps, the best constitutional remedies known for cancer.

Tonics are not to be overlooked, such as bark, iron, hydrastis. Thorough hygiene must be rigidly enforced; exercise in the open air, the best of blood-elaborating diet, cheerful society, change of abode, warm clothing.

## DISEASES OF THE EAR.

**IMPORTANCE OF HEARING.**—Hearing is one of the most important of our senses, and the organ of this sense is worthy of every effort for its preservation. By it we obtain information; by it we hold social intercourse, intellectual enjoyment, and communication with mankind at large. *Through* no other sense can our soul receive such profound impressions, numerous, intensive, varied; *through* no other sense can we receive such exquisite soul-stirring enjoyment.

Good hearing is essential in every department of life, for the interchange of thoughts, ideas and wants, and its loss or impairment interferes with our usefulness, our success in all the relations of life; its loss exerts the most pernicious influence on the destiny of man; its loss annihilates hopes and aspirations, and debars talent and genius from reaping their reward, and renders the patient anxious, melancholy, distrustful, and totally unfits him for the glorious and ennobling functions of our race.

ANATOMY OF THE EAR.—The ear, the organ of hearing, is divided into three parts, the external ear, tympanum or middle ear, and the inner ear or labyrinth.

THE EXTERNAL EAR consists of the auricle and the external canal. The auricle is a cartilaginous projection, with numerous depressions and elevations. Its size, shape, and angle of attachment, varies in different races and individuals; from it the canal extends inward.

The canal is a tortuous, irregularly curved tube, of various calibre, and in length an inch or inch and a half, lined with an integument in which are imbedded a number of glands, which secrete the ear-wax.

THE MEMBRANA TYMPANI is stretched over the internal end of the canal, and hermetically closes it. It is in structure very delicate, as fine as writing paper, nearly transparent, of a pearl gray color.

THE MIDDLE EAR, called the tympanum, is a small, irregular cavity, from a quarter to half an inch in its greatest diameter, bounded externally by the membrana tympani, and internally by the labyrinth or inner ear.

The ossicles, or a small chain of four extremely delicate bones, one end of which is firmly attached to the membrana tympani, and the other to a membrane covering the cavity of the inner ear, stretches across the tympanum or middle ear.

The first of these bones is called *malleus*, or hammer; the second *incus*, or anvil; the third *os orbiculare*, or round bone; and the fourth stapes, or stirrup. They are so named from their resemblance to these articles. The hammer is attached to the membrana tympani, and the stapes to the membrane of the inner ear. A small muscle is attached to the hammer and another to the stapes.

THE EUSTACHIAN TUBE is an aperture at the floor of the tympanum opening into the upper part of the throat, behind the posterior nares or inner opening of the nostrils; the length of this tube is about an inch and a half; the opening in the throat is the largest, being nearly half an inch in diameter. As it approaches the ear it grows narrower, but widens again at the entrance, so that the whole tube resembles a trumpet. The mucous membrane of the throat extends through the eustachian tube, and middle ear lining that cavity, and covering the small bones.

The inner ear, or labyrinth, is wedged into the fibrous portion of the temporal bone. It is divided into the membranous and bony labyrinth. The bony one is divided into three parts, the vestibule, the semi-circular canals and cochlea.

The vestibule is a small irregular chamber, about one-sixth of an inch in its longest diameter, having two small openings into the tym-



panum, each covered by a delicate membrane; these openings are called the *fenestra ovalis*, and *fenestra rotundum*, or the *oval* and *round windows*; to the membrane of the former the stapes is attached.

The inner wall of the vestibule consists of a sieve-like plate, through which passes the filaments of the auditory nerve, together with some blood-vessels.

The semi-circular canals are three small, bony passages, two of which open into the vestibule at both extremities, while the third opens into but one common passage, thus making very fine openings at the vestibule.

THE COCHLEA lies adjacent to the vestibule, and rather in front of the tympanum. In shape it resembles a snail-shell, a conical canal an inch and a half long, making two and a half turns around a central axis, termed the modiolus. Around this axis, a thin plate of bone winds like a screw; the passage is divided into two scala; the one opens into the vestibule, the other opens into the tympanum, by the *fenestra rotundum*. A serous membrane, secreting a fluid, lines the whole bony labyrinth. This bony labyrinth contains a membranous one, which is its exact counterpart in form, but being smaller than that, the space intervening is filled with the secretion before alluded to. The auditory nerve divides itself into two branches, one of which enters the cochlea, the other, the vestibule and semi-circular canals, and is distributed over the membranous labyrinth, terminating in very minute and highly delicate filaments. The fibrillæ of the nerve makes a distinct plexus—a perfect net-work, contained in a semi-pellucid, pulpy substance, resembling the retina.

The analysis of the human ear shows, that it is composed of three parts, evidently constructed for different purposes. The external part is constructed relatively to the medium by which the sense of sound is excited, and its configuration is well adapted to collect the vibrations of the air, and to direct them inwardly to the seat of hearing. The external part is the seat of hearing itself, consisting of the cavities above mentioned, containing a membranous texture, on which the sentient extremities of the auditory nerves are expanded. The middle part is a beautiful piece of mechanism, connected with the external and internal parts, and designed to transmit the impulses of air to the auditory nerve.

PHYSIOLOGY OF THE EAR.—Vain have been the efforts to discover and establish the physiological importance of the particular parts of the ear. Even comparative anatomy has hitherto afforded very little assistance. It is true, that we know that the auricle collects sound,—an office for which it is peculiarly adapted, on account of its size, elasticity, and being detached from the head, and directed forwards. We know that the sound, thus collected, passes into the auditory canal, where it is concentrated upon the *membrana tympani*. The vibration so produced is carried, by the agency of the chain of small bones, to the membrane of the vestibule. As one end of this chain is attached to the *membrana tympani*, and the other end to the membrane of the vestibule, vibration of one membrane must cause a corresponding effect on the other.

Through the eustachian tube, air is admitted into the tympanum, so as to produce an equilibrium with the air in the external canal, and permit the membrana tympani freely to vibrate. Without this air in the tympanum, perfect vibration of its membrane would be impossible.

The vibration of the membrana tympani causes the air in the tympanum to vibrate also, and produces a corresponding effect on the membrane of the fenestra rotundum, the opening of which communicates with the cochlea. The function performed by the chain of small bones, in communicating vibrations of the membrana tympani to the membrane of the fenestra ovalis, is performed by the air in communicating them to the membrane of the fenestra rotundum.

The vibration of these two membranes produces an agitation of the liquid which fills the intervening space between the membranous labyrinths and its bony case, and this agitation is felt or caught by the filaments of the auditory nerve, which are so minutely and delicately distributed over the membrane of the labyrinth, and therefore come in direct contact with this liquid. The impression so received is conveyed by the auditory nerve to the brain.

The ear-wax secreted by the glands, in the external canal, serves as a protection against cold and the entrance of foreign bodies, such as insects, dust, &c. Two muscles, one of which is attached to the malleus and the other to the stapes, protect the auditory nerve from being stunned by violent impressions.

From careful study of the ear, it may be perceived that good hearing only is to be enjoyed when all its constituent parts are in the most complete, harmonious perfection. It is true, that the auditory is of more importance to hearing than the auricle; but the structure of both must be perfect, if the hearing is to possess the greatest possible nicety and acuteness.

There is, however, no greater fault in the bringing up of children, than that of allowing the auricle to grow flatter and more fixed than is natural to it, by the habit of pulling down the night-caps, or wearing bonnets tight-fitting over the ears, by which the voluntary motion of the muscles of the auricle is lost for want of use.

PROPHYLAXIS.—Deafness being generally caused in consequence of diseases in the ear, those who value their hearing, and desire to prevent so great a calamity as to lose it, or have it impaired, should exercise the greatest care to preserve it in a healthy condition, and guard against all influences likely to prove hurtful. So long as the hearing is not the least impaired, or so long as it is supposed that nothing is the matter, it is difficult to enforce proper precautionary rules for its preservation.

If even a reasonable attention is given to the preservation of sound hearing, it would be better.

Cleanliness is essential to the preservation of the ear; washing them morning and night with a soft sponge, with lukewarm castile soap and water,—but no attempt should be made to force the sponge into the ear, so as to produce irritation or inflammation of the auditory canal. The greatest attention to those injurious influences, *cold* and *acute* sounds, cannot be too strongly recommended.

The application of cold, in every form, acts injuriously on the ear; not only on the auditory nerve, but on every part of the organ, whose small supply of blood and of vital heat is quite unequal to resist the powers of cold.

It is, therefore, a reprehensible practice, to think of invigorating the ear by washing it with cold water; it should be carefully avoided. The ear should only be cleansed with tepid water. It should be carefully guarded when bathing, either in salt or fresh water, with cotton-wool, and some covering; it should be rigidly covered in cold, damp and stormy weather; it should be protected from currents of air, either in the house, carriage or cars. It should be scrupulously observed never to dress children at open windows or in draughts.

The practice of inserting needles, hair-pins, is not only censurable, but injurious; so also is that obnoxious mode of pulling or boxing children's ears as a means of punishment; it is very productive of serious consequences, besides an irrational mode of correction.

Great attention should be paid to avoid acute sounds, loud reports, the ringing tones of trumpets and other instruments, the violence of which is apt to over-excite an irritable, debilitated auditory nerve.

A well-balanced or equalized circulation, is indispensable as a prophylactic measure; the extremities should never be allowed to become cold. The cutaneous circulation should be maintained by bathing, by friction, by flannel, by thick-soled shoes, and the health maintained in its normal condition.

*Progress.*—All diseases of the ear are disposed to run a chronic course, unattended by fever. Even the original inflammatory febrile character of many of these diseases is rarely acute, and if so, are much disposed to be chronic, to relapse, to pass into secondary affections.

On an average, rarely two per cent. of all the diseases of the ear will be found of an acute character. All others labor under forms of disease which have, from the commencement, been of a chronic character, or are attended originally by a slight inflammatory excitement, which, however, soon merges into a morbid secretion from the affected parts, and assumes purely a chronic form. The only reason that can be assigned for this, evidently depends on the solid structure of the ear, composed of bone, cartilage and membranes, firmly stretched over these, and which is but sparingly supplied with cellular tissue, and a very small proportion of blood-vessels.

*Predisposition.*—Diseases of the ear are extremely prevalent—much more frequent than is generally supposed. This arises from various causes. Our variable climate, and neglect of proper hygienic measures, carelessness, empirical treatment, the allopathic system of medication, and the do-nothing of homœopathy; and, undoubtedly, many persons are predisposed to diseases of the ear as an hereditary legacy. I have known families, for several generations, suffer from certain forms of deafness. Old age is predisposed to dullness of hearing. The most important predisposing cause is to be found in the open structure of the ear, which exposes it to all the vicissitudes of the weather, which renders it accessible to all acute impressions, against which it is not

protected by any contrivance like that which the eye possesses in the eyelids.

*Exciting causes.*—Among the causes which give origin to diseases of the ear, cold stands prominently forward. The lining of the external and middle ear with a glandular secreting membrane, offers a favorable soil for catarrhal rheumatic affections; and, besides the independent diseases to which it is subject, frequently participates in the diseases of the adjacent mucous membranes. All descriptions of cutaneous diseases, scrofula, syphilis, leucocythæmia, are often remarkably identified with disease of the ear. Erysipelas in the face, scarlatina, diphtheria, variola, measles, crusta lactea, tinea capitis, catarrhs, frequently exhibit the influence they exert in producing organic change of the ear.

Nervous fevers, such as typhoid, typhus, frequently produce a most marked debility of hearing, or utter deafness. Mental emotion, such as grief, care, melancholy, or terror, &c., have a most decided power over the auditory nerve, and give rise to the most obstinate cases of nervous deafness. Diseases of the brain, and certain medicines, such as quinine, give rise to deafness.

*Prognosis.*—In general, the prognosis in aural affections is by no means favorable. True, they are seated in an organ, the peculiar conformation of which does not allow us to hope for its removal by any effort of nature, or by critical discharges, or by acting powerfully on distant organs, and thus produce prolonged sympathetic reflex action on the ear; yet it is of the utmost importance to know that most diseases of the ear admit of a favorable prognosis under the improved method of treatment, and I might, with truth, assert, that they are almost all curable, if the treatment be correct, if it be undertaken at the proper time. But this proper moment, to the detriment of the patient, is almost always neglected, and in this way the disease is rendered incurable.

Patients and medical practitioners are too sanguine about diseases of the ear. *Some* think that otorrhœa may exist as a salutary discharge for all humors of the body, and ought not to be cured. *Others* pay no attention to the hearing until the case is hopeless. *Others*, aware that they are suffering from some disease of the ear, and, knowing the bad success of treatment usually resorted to, shrink from any medical treatment.

*The prognosis* is most unfavorable in those cases that have been subjected to various and opposite courses of treatment.

The degree of impairment of hearing, the age of the patient, the duration of the disease, afford no absolute prognostic data. But the degree of organic change, and of functional disturbance, to which the disease has attained, are of the greatest significance.

Diseases of the external ear are more amenable to treatment than those situated in the internal ear.

Organic diseases of the ear are, in general, both cured and prevented from recurring with more certainty than functional diseases of the same organ.



## DISEASES OF THE EXTERNAL EAR.

Diseases of the external ear belong principally to the young, because there is a greater determination of blood to that organ, and, consequently, a greater disposition to disease of growth. Besides the frequency of various forms, there is a tendency to participation in all cutaneous inflammations, the translation of which takes place in such diseases as measles, scarlatina, small-pox, and skin diseases generally. More mature age is totally exempt from development of diseases of the external ear; but there is less predisposition to them, and more powerful causes are required to excite them.

**MALFORMATION OF THE AURICLE.**—The auricle is not fully developed until the sixth month, and is that portion of the auditory apparatus most liable to variety and irregularity. Its peculiarities are sometimes so very slight that little difference can be appreciated. It is true that the conformation of the auricle is very various in different families and individuals. The helix, or lobe, is sometimes wanting; the concha, instead of being a concavity is a convexity. In other cases, the auricle is a mere fold of skin, or cleft, or found wanting altogether; and cases occur where we have a plurality of auricles. As a general rule, congenital malformation of the auricles is rare, although abnormal peculiarities of the external meatus and auditory canal are not uncommon. There is great variety in length, calibre, and curvatures of the sides of the internal auditory passage among different persons; as great a variety as there is in the shape of the nose, the auricle, or any other feature of the body, and, when admissible, ought to be rectified by surgical proceedings.

**WOUNDS AND INJURIES OF THE AURICLE.**—These injuries, either from accident or design, are occasionally met with, generally in the form of a cut or split, sometimes as a lacerated or contused wound. Fracture of the cartilage is not uncommon.

In the treatment of incised wounds, adhesion is rapid, provided perfect apposition is maintained, which is best effected after being carefully adjusted; if not near the scalp, by suture; if near the scalp, by gauze and collodion, or lead ribbon and collodion, or the application of lint spread with the white of egg, and applied, or by adhesive plaster, or by the auricular pad, which is made of cork, to correspond with the posterior part of the auricle and cranium. Union, by any of these measures, can usually be obtained by first intention.

The operation of piercing the lobe for the introduction of ear-rings, so common among all nations, is not unattended with danger. I have frequently seen it give rise to erysipelatous inflammation, to erythematous eruptions, having a tendency to spread, and also to abnormal growths in the lobe.

The skin of the auricle is highly sensitive, and is very characteristic of disease in other organs. It is red, in congestion of the head; livid, in diseases of the circulation; cold, thin and insensible, in nervous deafness, or in diseases of the internal ear. Sloughing and gangrene may occur from long-continued pressure, during a long illness, or from exposure and want of due circulation, as in putrid fever.

MORBID GROWTHS of the auricle are by no means uncommon. Steatomatous and sebaceous bodies form in the concha. Encysted tumors are not rare. Hypertrophy of the lobe often reaches a large size. Excision, where practicable; encysted tumors extirpated, or incise, and allow the contents to flow out, and subsequently inject some fluid that stimulates, like iodine, and then follow with a dossil of lint, smeared with Beach's black salve. Sometimes this hypertrophied condition can be removed by the following ointment:

R.—Iodide of lead;  
 Iodide sulphur, āā grs. xxx;  
 Muriate ammonia, ʒiii;  
 Simple cerate, ʒss.—M.

Keep constantly applied.

If debility, or any constitutional defect, shows itself, bark, iron and an alterative course. If the auricle remains thickened, painting occasionally with tinct. iodine, and following with cooling, discutient lotions, or the iodide of lead ointment, is of great utility.

INFLAMMATION OF THE AURICLE may occur idiopathically, or from accident. It may be induced by the stings of wasps or bees. When the part swells to a great extent, an excellent application is a solution of muriate of ammonia, or the application of spirits of camphor is of utility.

In idiopathic inflammation, the most efficacious plan of treatment is either lotions of arnica, or tincture of belladonna and iodine, or puncturing with a lancet, and the application of heat and moisture. The lobe occasionally suppurates, and small boils frequently form upon different parts of it, but their seat is chiefly around or within the meatus.

ERYSIPELATOUS INFLAMMATION OF THE AURICLE.—This affection frequently attacks the auricle. It may occur in connection with general otitis, or inflammation of the auditory canal, externally; or it may be caused by mechanical irritation. Most generally it spreads from the head and face. It usually begins with a disagreeable, painful sense of tension of the auricle, which, from the slightest red, assumes the darkest, deep-brown red color—hot, shining, sensitive to the touch, hard and swollen to such a degree that the prominences and depressions can no longer be recognized. Sometimes vesicles form, filled with a clear fluid, which soon dry into a scab. The meatus participates in the tumefaction; its diameter is diminished, and, from the irritation of the secreting glands, there is a thin, dirty fluid exudes, followed by some impairment of hearing.

In four or five days all the symptoms subside; the redness diminishes, and the skin becomes wrinkled; desquamation takes place; the meatus becomes free; the morbid secretions and dullness of hearing vanish.

ERYSIPELAS OF THE AURICLE is extremely painful, from the tension, and exceedingly annoying, from the proneness to relapse from the slightest cause.

*Treatment.*—The febrile and gastric condition are to be treated actively—energetically. An emetic of lobelia, followed by some stimulating tea; then a sufficient dose of podophyllin and euonymin; act freely on the liver and intestines; control the circulation with aconite and gelsemin; and sponge the entire surface, twice daily, with an alkaline wash. After acting thus on the secretions, give iron and bark in sufficient doses, such as—

Ry.—Tinct. ferri chloride, ʒi;  
Sulph. quinine, grs. xx.—*M.*

Twenty drops, in a wine-glassful of water, every three hours.

If this does not act well, give an infusion of gold thread, or bark, or hydrastis, or the elixir ferri et cinchona.

As regards topical applications, which are of doubtful utility, the best local applications that I use are—a mucilage of elm; the sulphite of soda, ten grains to an ounce of water; dilute acetic acid and acetate of lead; poultice of elder flowers; collodion and tannic acid; olive oil and lime-water; painting with con. tinct. veratrum.

Under this treatment erysipelas is easily controlled, and the parts quickly resume their natural function.

Chilblains are not so frequently met with as formerly, and perhaps this is owing to the change that has taken place in our winter climate these some years past.

If got in the earliest stage, friction with spirits of camphor, or tinct. capsicum, or oil of capsicum, in alcohol; or with a combination of balsam of Peru, Venice turpentine and camphor; or with tannic acid in solution. If ulcerated, the chlorate or permanganate of potash is a good remedy.

Enlarged sebaceous follicles are frequently found in the concha of the strumous. They are easily recognized by their dark heads, and can be pressed out with a pair of forceps.

CUTANEOUS AFFECTIONS OF THE AURICLE.—Diseases of the skin of the auricle are quite common; and, apart from the irritation they produce, they may, if allowed to extend into the meatus, produce disease in the external layer of the membrana tympani, and deafness. The most frequent skin diseases in the auricle are eczema and herpes. Syphilitic ulceration is by no means uncommon, and rupia are frequently seated on the external ear.

*Treatment.*—In acute eczema, we would give the C. podophyllin pills, with the acetate of potash. If there is any febrile action, we would combine small doses of the special sedatives. An alkaline-bath, frequently repeated, is excellent. Cleanliness is indispensable to the eradication of the affection; first, a poultice of slippery elm, then, after the heat, swelling and redness have subsided, a mixture of carbolic acid, in glycerine, or oil of cade, or a solution of gutta percha, in chloroform. With any of these applications, painted on several times daily, great relief is experienced; if from the heat and itching, they rarely fail to lessen the irritation, and reduce the part to a healthy condition. In severe forms, a lotion, as follows:

R<sub>y</sub>.—Chlorate potassa, ℥iii;  
 Morphia, grs. iv.;  
 Glycerine, ℥iii;  
 Aqua rosa, ℥iv.—*M.*

And apply by means of a piece of cloth, and cover with oiled silk.

But, while we employ these local measures, we must not neglect constitutional measures. Stillingia, phytolacin, irisin, comp. tincture of corydalis, or an infusion of equal parts of alhus, rumex and jeffer-sonia, associated with bark. Strict attention should be paid to diet; salt meats and pastry should be avoided, and a good animal and vegetable diet enforced. The bowels should be kept soluble, and alkalies occasionally resorted to.

In chronic eczema, the elder ointment, in alternation with carbolic acid, is of great utility.

The local and internal exhibition of the sulphites, are of undoubted value. In some cases, baths of an emollient character, or, of an alterative nature, as very weak nitro-muriatic acid. As the affection is very liable to relapse, the local and constitutional treatment should be continued for some time after all symptoms have subsided.

In the treatment of herpes, if we have febrile action, the arterial sedatives, the alkaline-bath, and, if there is much irritation about the part, a lotion of glycerine, opium, and chlorate of potassa, will be useful. Borax and morphia, or equal parts of glycerine and muriated tinct. ferri. It may often be arrested by painting the part with tincture of iodine, or the muriated tincture of iron. I have also found the sulphate of zinc, blood-root, &c., useful. In the chronic stage, I have succeeded well with nitrate of silver, ten grains to the ounce. If any discharge exists, the meatus should be syringed out with tepid water, daily; both it, the concha and tympanal membrane, should be washed with the solution of the sulphite of soda, and then the brown ointment applied.

Syphilitic disease of the auricle is best treated with a thorough alterative course, such as the C. syr. stillingia, tincture kalmia, irisin, phytolacin, menispermin, chloride of gold, iodide of sodium, sulphur or mineral acid-baths, and locally, by the permanganate of potash, and the black salve; also, attention to hygienic measures, and to the maintenance of a good standard of health.

Besides these cutaneous diseases, affecting the auricles, there are others peculiar to children during dentition. Cleanliness, and a general alterative course are indispensable. Irisin, in solution, is an admirable remedy internally.

MALIGNANT DISEASE OF THE AURICLE.—Cancerous disease may either commence in the auricle, or spread to it from the neighboring parts. The symptoms do not essentially vary from the disease in other parts, as we have swelling, burning, itching and lancinating pain. The whole surface of the auricle is, by degrees, implicated; its eminences and depressions become effaced, and it forms a shapeless mass. Vesicles form, and rapidly ulcerate, and, in some cases, we have even modifications of cancer. An important degree of dullness of hearing never fails to attend this state. It is easily distinguished



by its peculiar symptoms, by the diathesis of the patient, by the character of the pain. It is usually chronic; its development is slow, but proceeds with certainty, unless properly arrested. The extension of impetiginous or leprous cutaneous affection, does not predispose to cancer of the ear, unless the diathesis be present; it may be an exciting cause, as irritation or want of cleanliness. The prognosis is not altogether unfavorable, if thorough constitutional treatment is enforced; great tediousness may be expected, as the structure affected is remarkable for its feeble vitality.

*Treatment.*—This must be the same as is laid down for cancer generally, and be directed to the removal of the diathesis. A thorough alterative course, together with everything calculated to amend the general health, and give tone and energy to the system. Nitro-muriatic acid, or sulphur-baths, are very useful, as adjuncts in treatment.

But if the structural change of the auricle be so great, that its restoration to a healthy condition can be no longer expected, the degenerated portions should be removed by some of the methods I have laid down for its removal, and a rigid alterative course maintained for years.

**FURUNCLE OF THE AURICLE.**—A red, hard tumor, from the size of a pea to that of a hazlenut, sometimes appears on the auricle. Its appearance is generally preceded by pain of a sharp, throbbing, pricking character, with an increase of temperature. If small, it gives little disturbance; if large, with extreme redness, tension and swelling, it may give rise to a considerable constitutional disturbance. After this swelling has lasted for days, and it may be for weeks, without much change, fluctuation will be detected; when, if opened, and evacuated, and washed out with a wash of sulphate of zinc, or blood-root, it will shrivel up, and in a short space of time be obliterated. The seat of the disease is in the cellular tissue beneath the dermis, where the formation of pus invariably takes place. If it gives rise to constitutional symptoms, purgatives and arterial sedatives, and speedy evacuation should be resorted to.

**TUMORS BEHIND THE EAR** and connected with the mastoid process, require the immediate and special attention of the practitioner. There are various kinds of these tumors.

There is a small gland lying upon the mastoid process, immediately above the intersection of the sterno-mastoid muscle, and on a level with the tube of the ear, which sometimes enlarges to the size of an almond; it becomes highly irritable and painful to the touch, so as occasionally to resemble a neuroma. It generally occurs in young ladies. The external application of iodine or collodion and tannic acid; or a solution of muriate of ammonia, and the internal use of bark and iron, or comp. tinct. tamarac, or hydrastis, is usually sufficient to remove these tumors—a cure is tedious.

Another form of tumor is simply a suppurating gland, and is common among strumous children during dentition.

The quickest method of relieving the difficulty consists in the administration of the comp. syr. stillingia, with iodide of sodium, alternating with tonics, as hydrastin and phosphate of iron.

As a local application, lime-water, or a lotion of the chlorate or permanganate of potash.

Another form of tumor we often meet with, is a chronic abscess, generally connected with diseased bone. The treatment must be the same as laid down for scrofula.

Another form of tumor is a true aneurism of the posterior aural artery. Pressure is the only safe treatment.

Another form of tumor is of the malignant order.

## DISEASES OF THE MEATUS EXTERNUS.

Wounds of the external meatus are rare; they are generally produced by sharp, penetrating instruments, puncturing or lacerating the walls of the passage by foreign bodies, impacted therein, or by the injudicious efforts of surgeons to remove them.

After any such wound, the treatment consists chiefly in subduing inflammation, and allowing the punctured and abraded part to recover with the least possible degree of irritation.

HEMORRHAGE from the external meatus may occur from a great variety of causes, which it is important to enumerate: from strangulation, drowning, concussion, fracture through the base of the skull, asphyxia produced from various causes, apoplexy, and other congested states of the circulation, as well as falls and blows on the side of the head; it may occur in the progress of the disease from slight accident, from the presence of polypus or fungoid granulations in the meatus.

FOREIGN BODIES sometimes get into the meatus through accident or design. They cause a great deal of pain and irritation. Children not unfrequently put bits of slate pencil, peas, glass beads, &c., into the passage, which, if allowed to remain, would give rise to violent inflammation and deafness. All such bodies should be removed quickly, and as gently as possible, either by syringing the ear with tepid water, or by means of a small forceps, or a curette or scoop, or bent wire, or probe. The ingenuity and dexterity of the operator will suggest the most feasible mode of operating.

When it is remembered that death has frequently followed the introduction of a foreign substance into the meatus, and that epilepsy and many other distressing symptoms have ensued from the same cause, manipulation, for the removal of these bodies, must be undertaken with great care.

Acids have been poured into the ear, either by accident or design, and have produced frightful agony and even death.

## DISEASES OF THE CERUMINOUS GLANDS.

One of the most curable forms of disease arises from the impaction of the auditory canal with hardened wax. In cases of recent accumulation, the dark, shining convex end of the plug may at once be perceived on inspecting the meatus; in those of long standing, where the fluid portion has been evaporated, the offending material, mixed with hairs and scales of cuticle, has generally a concave surface, is not

thicker than half a dollar, and adheres firmly to the outer surface of the membrana tympani, causing impairment of hearing and most distressing tinnitus.

Cases of deafness arising from accumulations of cerumen, are so numerous and so easy of cure, that it is unnecessary to take up space describing them. The ceruminous glands are more liable to morbid changes than the profession are aware. The moment an inflammation is excited in the adjacent parts they cease to secrete. When otorrhœa is present, their function is suspended. At other times they secrete a thin, light-colored cerumen, honey-like, rapidly. Hardened wax in the ear may be met with in all ages, but middle life is most prone to it: sometimes depending on inflammation of the glands themselves. The wax is darker in color than is natural, resembling pitch in tenacity and thickness.

*Treatment.*—Simple removal of the wax will often remove the deafness. For the removal of the wax, syringing the ear, (*Fig. 61*.) directing the fluid, not against the centre, but rather at the edges, where it is usually fastened by a number of hairs, intimately connected with the cuticle. From time to time the speculum should be inserted to watch the progress of the ease. Then, when partially detached, the forceps should be passed down to the body; then seize it, and withdraw it; or, if unable to accomplish it in this way, the ear-spatula or blunt curette, might be tried. Glycerine, or worm oil, has also been successful;—its *modus operandi* is simple enough; the glycerine, or oil, being kept continually in contact with the part, acts mechanically, either absorbing or penetrating the epithelial coating, and separating the individual particles.

The frequent introduction of pure glycerine, or worm oil, tends to restore the external meatus to a healthy condition.

The accumulation of ear-wax has unjustly been attributed to neglect, want of cleanliness on the part of the patient. It is, however, a morbid product, usually the effect of inflammation, the removal of which no patient can effect, for the

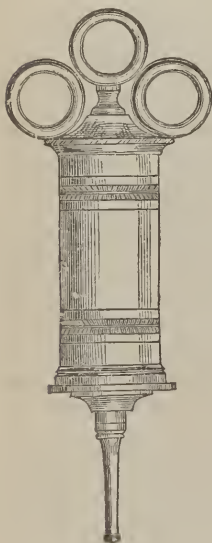


Fig. 61.

auditory passage, naturally very sensitive, is rendered much more so by inflammation. Cold is the chief cause of this trouble, and the prognosis is always highly favorable when a careful and skilled physician has charge of the case; the patient having the gratification of finding his hearing, which may have been enfeebled for years, suddenly restored. But, if nervous deafness is associated with this accumulation of cerumen, its removal does not effect the least beneficial influence on the dullness of hearing, tinnitus, &c., since the deeper-seated affection of the auditory nerve remains unaltered.

After the removal of the hardened wax, by any of the methods, it is good practice to make a thorough examination by the speculum;

and if the walls of the meatus are found much reddened, a solution of morphia and hamamelin should be dropped into the ear; and its action is powerfully aided by rubbing veratrin ointment behind the ear. If there is evidence of the ulceration of the meatus, it merely requires to be smeared with tincture of myrrh or sanguinaria, in order to effect a cure.

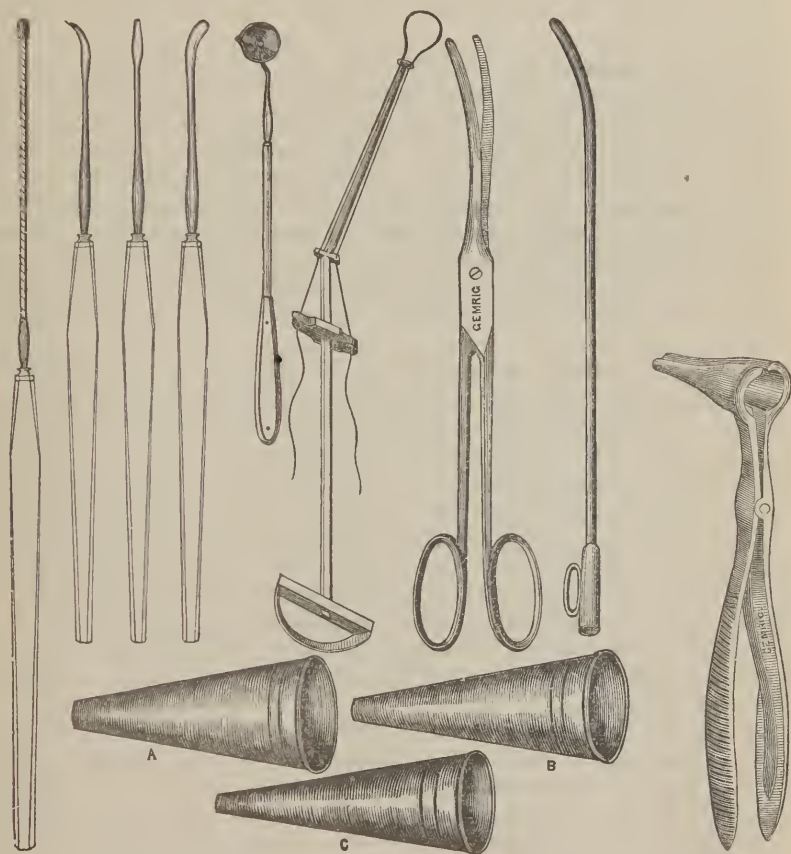


Fig. 62. Fig. 63. Fig. 64. Fig. 65. Fig. 66. Fig. 67.

Fig. 68.

Fig. 69.

Fig. 70.

*Figs. A, B, C, exhibit three sizes of Wilde's ear-speculum. Fig. 62, porte caustic, for cauterizing the auditory canal. Fig. 63, knife for excising aural polypi. Fig. 64, knife for perforating the membrana tympani. Fig. 65, a curette. Fig. 66, a cup for fusing the crystals of nitrate of silver or caustic soda. Fig. 67, Wilde's snare, for polypus. Fig. 68, ear-polypus forceps. Fig. 69, eustachian catheter. Fig. 70, ordinary ear-speculum.*

**INFLAMMATION OF THE EXTERNAL AUDITORY CANAL.**—Inflammations of the external meatus and auditory canal, are of very common occurrence. The patient experiences, more or less, troublesome itching



in the ear, with an irresistible impulse to thrust the fingers into it. This irritation passes into severe, burning, tearing pain, which is much increased by any motion of the jaws, as in eating and speaking; disturbs the rest, and extends over the whole ear, to the mastoid process and the parotid gland. The auditory canal is swollen, diminished in calibre, hot, but not red. The tumefaction and redness (when present) extend over the auricle, involving the whole, or a portion of it. The tumefaction, as a general thing, is pale, sometimes of a deep red color.

This inflammation of the external meatus often gives rise to abscess. Generally, it is not like the diffused form, the result of cold, but would seem to be induced by some peculiar state of the constitution, and very often appears either as the sequel to, or a concomitant of boils on other parts of the body. More common in females than in males; sometimes the size of a pea; at others, as large as a marble; seldom appear singly; constitution frequently sympathizes. From the structures affected, these abscesses are usually slow in their progress, and almost invariably point internally. The contents of each abscess consists of thick, yellowish pus, and a hard core of cellular tissue.

*The local treatment* most efficacious for preventing suppuration, in these parts, when inflammation has been set up, is the application of comp. tinc. of veratrum, or lobelia, or iodine, or nitrate of silver. Some cases yield to the extract of phytolacca. At the same time fomentations of chamomile flowers, or poultices of conium, holding the ear over the steam of hot water, or hot vapor of lobelia, will afford relief, both before and after the matter has been evacuated. Careful constitutional treatment is very serviceable. Tonics to improve the digestive functions, bark, iron; wine bitters will prevent a recurrence. The C. syr. stillingia, with iodide of potash, is of great utility.

DIFFUSED INFLAMMATION of the external meatus is of great moment. It is usually a disease of infancy and youth, and is decidedly of strumous character.

Acute inflammation, if diffused over the external meatus, may be either idiopathic, as from cold; *traumatic*, from any foreign body or substance, which is irritating; or *specific*, when it occurs in the course of some of the exanthematous fevers, or is attended by other symptoms, as we often have in *rheumatism*, where we always have a preponderance of lactic acid in the system. We may also add another form, the periosteal inflammation, where, sooner or later, the bone becomes affected. Inflammation of the meatus can scarcely exist, or at least proceed to any extent, without affecting the membrana tympani. The inflammatory action is usually limited to the mucous membrane of the cavity of the tympanum.

*The symptoms* are dryness, itching heat of the part, gradually increasing to a dull, aching pain, and latterly an acute lacerating pain, increased at night, and in some cases amounting to insufferable agony, with loss of rest, fever and even delirium. The lining of the meatus is swollen, at first dry, pinkish, then white, at which stage the whole surface of the membrana tympani is frequently seen coated with

a layer of plastic lymph. In a short time a sero-mucous or muco-purulent discharge is established, or a yellow pus pours from the meatus, and relief is then experienced. In rheumatic cases, a sensation of soreness in the side of the head, and all the symptoms aggravated by the movement of the jaws.

*The treatment of inflammation* of the external meatus should be upon general principles. Any febrile disturbance should be controlled by the arterial sedatives; the alkaline-bath should be resorted to; the bowels and kidneys should be kept stimulated by the use of podophyllin, leptandrin and eupatorin. Mild purgation is advantageous. Irisin and menispermin are specially indicated, nay, essentially demanded. Dry cupping, or counter-irritation by the Firminch method, around the ear. Anodyne and emollient lotions will be used with success; elm and hyosciamin, or an aqueous extract of opium.

Whatever may be the cause of the inflammation in the lining of the meatus, diseased action, once set up, may spread, sooner or later, to the periosteum and the bone, causing necrosis, exfoliation, cerebral disease and death. It is, therefore, a disease demanding at all times our most serious attention, and our treatment should be prompt and energetic.

If granulations form, and sprout from any portion of the canal, the best method consists in brushing over them a strong solution of nitrate of silver or nitric acid.

If there is intolerable itching of the meatus, with a dry, brawny state of the cuticle, lasting for months, it is usually relieved by the application of gutta-percha solution in chloroform or glycerine, or a solution of equal parts of gelsemin and hydrastin.

Ulceration of the meatus occurs frequently in otorrhœa, or where irritating substances are introduced by accident or design.

Extreme cleanliness, astringent washes, together with good constitutional treatment, will cure most cases.

As a result of long-continued inflammation, we have morbid growths and alterations in the external auditory canal, collapse of its walls, or the aperture prematurely wide, stricture, polypus, &c.

CLOSURE of the external meatus may arise from a variety of causes, not the result of an inflammation. It is a disease of middle life, usually attacking one ear and then the other. It is difficult to manage.

It is worthy of note that when once any of the free cartilages, as the nose or auricle, become viciously bent or distorted, it is almost impossible to restore them by art. Tents, made of compressed sponge, india rubber, &c., should be tried, and, if they fail, the defective hearing may be at once relieved by the introduction of a small, silver gilt, metallic tube.

In the use of sponge tents, let them be medicated with bark or myricin.

In a large number of cases of otorrhœa, more especially where the discharge is profuse, the meatus is often larger than natural, and the excoriation severe, the matter ichorous in character—not forming scabs—then we may have fungous granulations, or condylomata, or

polypus of the external meatus. Such cases are best treated by powerful astringents, sulphate zinc, blood-root and myricin. It is also good practice, if they do not yield to the above, to touch them with the caustic soda, following with injections of a solution of hamamelin and myricin, at the same time pushing a constitutional treatment with stillingia, irisin, phytolacin, menisperm, combined with iodide of sodium. By a persistence in the use of these remedies, cure is rapid and hearing is unimpaired.

When otorrhœa has been long established, and earies has taken place, fistulous openings sometimes form between the external meatus and mastoid regions.

Before concluding this portion of our subject, we desire to call the attention of our readers to the very great utility of hypodermic injections in aural surgery, not only as a means of allaying pain, but as a means of relieving very urgent symptoms. I put very great reliance on the use of this method of exhibiting remedies. It is a well-known fact that the cellular tissue has great power of absorption, even more prompt than the stomach, and that remedies introduced on or near a nerve have a wonderful effect in acting efficiently, and all that is wanted is the remedy in a state of solution.

## DISEASES OF THE MEMBRANA TYMPANI.

The membrana tympani, as we have seen, separates the external meatus, at the extremity of which it is placed, from the cavity of the tympanum; so that, from its position as well as its anatomical connections, it must partake of the diseases of both cavities, independent of those peculiar to itself. It is of the greatest importance that practitioners should be thoroughly acquainted with the appearance of the membrana tympani in health and disease.

INJURIES OF THE MEMBRANA TYMPANI may be caused by penetrating instruments, or by foreign bodies passing through from the external meatus, fracture of the temporal bone, blows or falls on the head, loud sounds, concussions, or the sudden impression of a stream of air within the tympanum when the membrane is in a state of tension. Bleeding from the ears, in hooping cough, comes from the middle ear, through the burst membrana tympani.

The best treatment that can be adopted for recent injuries of the membrana tympani are, cleanliness, attention to the secretions, equalizing the circulation, and allowing nature a chance of repairing; but if inflammation arise, it must be promptly controlled.

INFLAMMATION OF THE MEMBRANA TYMPANI.—This affection has been very obscure until within a few years ago. Its usual symptoms are, that the patient suddenly experiences, at the bottom of the meatus, more or less acute pain, which extends to the throat, is accompanied by buzzing in the ear. The membrana tympani is only slightly reddened in part of its extent; the auricle and auditory canal are unaltered; the patient is free from fever; so that the symptoms, on the whole, are mild, and rapidly disappear. But, if the inflammation becomes more extended, of greater intensity, the symptoms are more

severe—the hearing is enfeebled. Inflammation of the membrana tympani, or myringitis, usually commences in the fibrous layer, and is frequently accompanied by inflammation of the cavity of the tympanum,—sometimes of a rheumatic character. Under the same, we have subacute inflammation, syphilitic inflammation, strumous inflammation, chronic inflammation, and the inflammations accompanying the exanthemata.

In acute inflammation of the membrana tympani, the vascularity is generally seated in the true fibrous structure, and is usually the result of cold or the rheumatic diathesis, irritation from various causes. The dermal structure takes on abnormal action, and, together with the auditory canal, pours out a muco-purulent secretion; vesicles or pustules form, granulations are thrown out, thickening takes place. The true fibrous membrane passes through all the pathological changes of an inflammatory state.

*Symptoms.*—A seizure of sudden and intense pain in the ear itself, first appearing at night, and attended with nocturnal exacerbations during the progress of the disease. The pain is excruciating, sharp, penetrating, increased by movement; a sense of fullness and bursting within the organ. With these, pain and soreness in the side of the head; in the teeth, eye, temple, neck; flying rheumatic pains throughout the body. If neglected, or unrelieved by treatment, the pain extends to the throat and mastoid region, and is increased by pressing the mouth of the eustachian tube with the finger.

The severity of the pain experienced, the extent of the soreness to the touch is a test of the amount of the inflammation. The peculiarity of the pain is also a means of judging of the seat of inflammation; for, if it be experienced in swallowing, mastication, or sneezing, &c., we may infer that the inflammation has extended to the middle ear. By the profession *earache* is regarded as a neuralgic affection of the ear; but I have never observed earache without evidences of inflammation, either of the meatus or tympani.

Coincident with the seizure of pain, the patient complains of *tinnitus aurium*, and the noises are described as a dull throbbing, or pulsation; in mild forms weak, but stronger as the inflammatory stage advances; an increase of the circulation, or nervous excitement of any kind, invariably renders these ear-noises worse.

Deafness of the sense of the affected side comes on with the pain, or very shortly after it. In severe forms of inflammation of the ear, pain in the teeth of the affected side is not uncommon.

To these local symptoms we may add the following constitutional ones: Symptoms of catarrh, heat of skin, headache, hemicrania, distress, anxiety, sleeplessness, restlessness, nocturnal exacerbations, accelerated pulse, delirium, rigors.

The physical signs are those of inflammation, heat, swelling, pain, redness, and latterly exudation of lymph and muco-purulent secretion, with detachment of the cuticle, both from the surface of the membrane and the parieties of the canal, follow. Ulceration, perforation, collapse of the tympanum, necrosis of the bones, and, it may be, paralysis of the muscles of the face. In addition to the inflammatory action of



the tympanum and its membranes, the throat, in numerous cases, becomes swollen and infiltrated. The tonsils also are swollen; there is difficulty of deglutition. We have an inflammatory condition of the middle ear, extending over the eustachian tube, causing thickening and obstruction of its lining membrane, with an accumulation of mucus, which greatly impedes the transit of air into the drum, and causes that peculiar feeling of stuffing which is common in influenza, catarrh or cold.

The nose partakes of the unhealthy condition of the neighboring mucous membrane; we have a feeling of stuffing, faucial respiration, as an attendant. This form of inflammation more frequently affects the strumous; occasionally prevails as an epidemic.

*Treatment.*—In the treatment of acute myringitis, the indications are, evidently, to equalize the circulation, to reduce inflammatory action, subdue pain, &c., &c. I am very partial to aconite, gelsemin, veratrum, in combination, given in sufficient quantities to keep the pulse at 75 or 80. This is effectual in mitigating and affording great relief, and allaying the violence of the local inflammation. Dry or wet cup behind the ear, and use fomentations of an anodyne character. The relief of this treatment is often instantaneous; at all events, it is decided.

The employment of moist heat or medicated vapor, according to the plan that I have adopted, solely, is of very great benefit. It consists in allowing warm, medicated vapors to have access to the inflamed parts.

The temperature of the room of a patient suffering from myringitis, should be strictly attended to, it should be warm, well ventilated, and no draught permitted; if not obtainable; cold air must not reach the ear; this gives the patient great discomfort.

If there is much neuralgic pain, rheumatic soreness, and tenderness to the touch, especially about the external ear, and over the side of the face, relief will be experienced by a subcutaneous injection of morphia, by an application composed of a mixture of tinct. aconite, belladonna and chloroform, or a mixture of gelsemin and hyosciamus.

The practice of pouring oil, glycerine, &c., into the ear, should never be tolerated; it is irrational.

The condition of the skin should be attended to; it is hot, dry, and demands our special attention; and the asclepin, in full doses, or the sudorific drops, should be freely given; it should also be sponged morning and evening with an alkaline wash, which tends to bring blood to the surface, and thereby relieves the ear. The bowels should be attended to, by the exhibition of podophyllin, colocynthin and ipec-tandrin, equal parts. Having thus pushed the treatment vigorously, I would put the patient upon the following remedy every four hours.

R $\bar{y}$ .—Extract cannabis indica, gr.  $\frac{1}{2}$ ;  
 Extract conium, gr. i;  
 Ferro citratis et strychniæ, gr.  $\frac{1}{8}$ .—*M.*

Ft. Pill, No. 1.—I have also found some of the following prescriptions of utility, according to the indications.

℞.—Ammon iodide, 5v;  
 Ammon bromide, 5ii;  
 Potassii bromide, 5vi;  
 Ammon sesqui-carb., grs. xxx;  
 Infus. hydrastis;  
 Infus. gold thread, āā 5.—*M.*

A tablespoonful three times daily, with a little water. To give comfortable sleep, order a pill at night, of the following :

℞.—Morphia valerianate, gr. ss;  
 Extract hyosciamus, grs. ii.—*M.*

Counter-irritation, by means of irritating plaster behind the ear is advantageous.

Having thus resorted to means calculated to meet the indications, we should, if the pain and deafness are not relieved, if the redness and vascularity remain, resort to powerful alteratives, such as

℞.—Comp. stillingia alt., (Keith,) 5i;  
 Iodide sodium, 5i.—*M.*

Thirty drops in a wine-glassful of water, thrice daily. This is an excellent combination, and where it is employed, it produces a well marked improvement in all the symptoms. I have also found one-thirtieth of the chloride of gold in alternation very efficacious, and keeping the patient under its influence for two weeks—a very beneficial result is also obtained.

In the subsequent management of the disease, the iodide of iron, or iodide of potassium in the stillingia syrup, or alternated with some preparation of bark, will hasten the cure, as well as promote absorption of any thickening or deposit. The tinnitus will gradually disappear. The state of the meatus and membrana tympani should be examined daily, or oftener if necessary; and then, if we discover an ulcer or fungous growth, it should be touched with the caustic soda. If otorrhœa has occurred in the form of muco-serous exudations, from the external surface of the tympanal membrane and auditory canal, or owing to pus and mucus escaping from the middle ear, through an aperture in the membrana tympani, or from abscess in the walls of the external auditory canal, we should remove the discharge by very gently syringing the part with water medicated with lycopin or hamamelin. If we suspect the rheumatic diathesis, (lactic acid in the blood,) alkalies must be given in addition, and, as a local remedy, the sulphite or bi-sulphite of soda is excellent.

SUBACUTE MYRINGITIS.—Inflammation of the membrana tympani frequently exists in a sub-acute form, and, although perfectly painless, is very destructive to hearing. Deafness is usually the first symptom; there is little else to show signs of disease; the cerumenous secretion is arrested. Usually no constitutional disturbance, the tinnitus is of a singing character. If not discovered, and promptly arrested, the membrane becomes thickened, opaque, from lymph deposits, and the

deafness that ensues is of an irremedial character. Ulceration, even to perforation of the membrane, is not uncommon.

The disease is insidious in its progress, and it is here that alteratives are of decided value. Irisin and chloride of gold are the only remedies to be depended upon, persevered with to produce a steady and gradual effect. In alternation with these remedies, bark, iron and nux are highly useful. The various preparations of iodine are also worthy of a trial. The best results I have obtained from the iodide of sodium. The application of the irritating plaster, thorough hygiene, change of air, removal to the highland or sea-side, generous living, all hasten the cure. To relieve tinnitus aurium, after the inflammatory action has subsided, I have found gelsemin and quinine to be valuable; in some cases cypripedin and scutellarin, in others belladonna and nux vomica, while in the largest number of cases, rapid relief is afforded by the administration of the tincture of arnica in fifteen-drop doses, gradually increasing it till its constitutional effects are obtained. The various emunctories of the body should be carefully attended to, and the use of an iodine or sulphur, or nitro-muriatic bath, twice a week, should not be neglected.

As long as any vascularity, or recent deposit or thickening, exists in the membrana tympani, notwithstanding visible improvement of the hearing, we should not desist in our efforts at its removal, as these cases are insidious and protracted in their character. If ulceration exists, touching the part with a solution of caustic soda, or phytolacin and sanguinarin. In all inflammations of the middle and external ear, the secretion of cerumen is arrested, and it is long after the disease has been relieved before the glands resume their usual healthy functions; the auditory canal remaining dry, scaly, and if wax is secreted, it is hard and inspissated. This deficiency is but a symptom, and is often easily relieved by a mixture of oil sassafras, ten drops; glycerine, one drachm; olive oil, half an ounce; a drop or two of turpentine added, to give it greater therapeutic power, or the brown ointment applied in a melted state with a soft brush.

**SYPHILITIC MYRINGITIS.**—All reformed practitioners are aware of the fact that venereal occasionally causes deafness. Whether it is due to the virus acting on the fibrous structure, or operating by metastasis on the striking in of some eruption, it is impossible to say. All cases of this kind that I have seen, occurred in patients who had primary sores twelve months previously. The sores had been tedious in healing, and, in all cases, had been followed by a papular eruption and sore throat; and in every case that I have seen, the disease appeared suddenly, as the eruption was fading off. Besides the usual symptoms of myringitis, we have all those peculiar to secondary syphilis,—eruption, copper-colored blotches, ulcers on the tongue, loss of strength, nocturnal pains, and, in some cases, loss of hair. It frequently begins with a sensation of fullness in the head, vertigo in stooping, and, upon examination, the amount of redness and vascularity is very great,—greater than in the acute or subacute form; and in this consists one of the chief characteristics of the disease, that, while it is unaccompanied with much local pain, the membrana tympani is exces

sively red and vascular; the redness is often of a brownish hue; the tinnitus, thickening, &c., are similar to the former, and no theory can be entertained by city aurists but that syphilis plays an important part in the production of deafness.

*Treatment.*—This demands very active treatment. My usual plan in getting hold of a patient at the start, is to begin treatment with an alcoholic vapor-bath, and to give the patient, every two or three hours, a teaspoonful of equal parts of tinct. serpentaria and essl. tincture of asclepias, keep up free perspiration, following with a brisk stimulating purgative. Locally, we would use cups, or counter-irritation over the mastoid process. This we would follow with vapor of stramonium, or the vapor of tincture of opium, stramonium and lobelia, applied directly to the external meatus and membrana tympani—applied by means of a gutta-percha or gum-elastic tube. Chloroform, ether, carbonic acid gas, may be applied in the same way.

Having thus relieved the pressing symptoms, a powerful alterative course, having in view the eradicating of the syphilitic virus. For this purpose I have found nothing to excel irisin, menispermin, phytolacin, podophyllin, rumin, corydalin, and the concentrated anti-syphilitic agents, with the iodide of sodium or potassium, in alternation with chloride of gold or the sulphites, together with iodine baths. This course of treatment, with nourishing diet, has an almost miraculous effect upon the redness and vascularity. The vapor or spray of the permanganate of potash cannot be too highly spoken of here. The comp. syr. stillingia, frostwort and celastrus, with tinct. kalmia, are excellent to alternate with, as I never continue one remedy longer than a week; to give it longer the dose must be doubled, as the system has become, as it were, habituated to the use of the remedy.

*GOUTY OTITIS.*—It would seem clear to my mind that such an affection does exist, pure and uncomplicated. We have the local manifestations in acute, wandering pains, with pain and swelling in the small joints, with a tendency to various complications of the internal viscera, no doubt due to an excess of soda, which, uniting to the lithic acid, produces a lithate of soda, which exudes into the cellular tissue of the skin, and around the synovial linings of joints, constituting tophaceous deposits.

The treatment that I have found of the most utility is, thorough hygiene, active secretions, vegetable diet, exercise, the administration of our vegetable alteratives, with iodine; also the avoidance of too prolonged a stay in too warm apartments, and too high living.

*STRUMOUS MYRINGITIS.*—In all our large cities, strumous myringitis is the most common of all the varieties of inflammation of the membrana tympani; its seat is in the mucous layer of that structure, and it soon spreads over the whole cavity. This is one of the most prolific sources of deafness in after life. It is most common in the young, and rather more easily excited in girls than in boys, evidently on account of the tender susceptibility of the structures of the former, and has always for its base the scrofulous diathesis.

The first symptom that is usually noticed in a young person, it may be at school, is inattention, and, it may be, reprimanded for such.



Parents usually take it for a cold, and think it does not signify; it will soon pass off, although the seeds of deafness for life, are too frequently deposited.

In scrofulous myringitis, the auditory passage is usually dry, but seldom red. The membrane lining the tympanum is of a uniform pinkish hue, but without thickening or opacity in the early stages. The color of the tympanal membrane is significant, being invariably of the tint of pink blotting-paper. There is always a mucus engorgement of the cavity of the tympanum, with thickening and increased redness of the faucial mucous membrane, a condition which soon extends through the lining of the eustachian tube, into the middle ear. It is generally a painless disease, and but seldom accompanied by tinnitus, in the early stages; occasional cracking sensations, gurglings, loud reports, catarrh, stuffing in the nose and frontal sinus, great liability to catch cold, are usual symptoms; there is no pain or pressure in or about the ear, the throat, the mouth and the eustachian tube. Strumous affections of the eyes, enlargement of the tonsils, glandular swellings about the neck, are not uncommon symptoms. The amount of deafness varies from hearing at short distances, to total inability to hear a watch held between the teeth, or to hear what is said in a loud voice; and, generally speaking, the amount of redness and vascularity, presented in the membrane of the drum, is in the ratio of the amount of deafness; but the latter is very variable, and, would, in many respects, be influenced by the state of the atmosphere. If the redness assume a damask rose-color, we may be satisfied that the whole middle ear is engorged. Simple mucous discharges occur occasionally; purulent otorrhœa succeeds in the more aggravated cases. The constitution is generally below the standard of health; the patient is pale, languid, inactive, slight loss of appetite, and dryness of the skin. This form of myringitis is very liable to relapses and returns, and of this latter circumstance, the patient or his friends should be informed. When a child has once had this complaint, the slightest exposure to cold may bring it on.

*Treatment.*—The internal treatment of scrofulous myringitis, same as scrofula. The local treatment, counter-irritation, will be found most effectual; the veratrin ointment or irritating plaster, are more efficacious than ordinary blistering. I have also used, but not with as good success as the above counter-irritation, by Firminch's instrument; tinct. iodine, croton oil and acetic acid, conjoined with the spirits of turpentine. The irritation should be kept up for some months. Whatever is used, great care should be taken that it does not spread over the back of the auricle, which is very likely to become inflamed, and greatly swollen by it.

This is one of the diseases in which catheterism of the eustachian tube is indicated, and it should be resorted to. When the patient himself can readily pass a current of air through the drum, by making a forced expiration, so that we can clearly perceive the full and natural inflation of the membrane, the introduction of a catheter, and the pressure of a stream of cold air, is not only unnecessary, but injurious. In cases, however, where mucus has collected in the cavity of the

tympanum, catheterism may now and then be resorted to with good success, and some bland fluid or vapor might be thrown up with a suitable apparatus. The smoke or vapor of stramonium, tobacco, conium, opium, where there is great redness and relaxation of the mucous membrane, is attended with beneficial results, acting as a stimulant and astringent, and is a practice deserving our consideration in strumous myringitis. As a fluid for injection, an infusion of baptisin or gelsemin, in solution, &c. The enlarged tonsils that accompany this affection, are common to all strumous affections, and are not the cause of deafness, consequently we do not recommend their removal, as has been the practice; but the application of a strong solution of hydrastin and sanguinarin, to the back part of the throat and fauces, and particularly towards the mouth of the eustachian tube, by means of a sponge or a piece of lint, firmly held by a probe, and applied as far up as possible, behind the pillars of the soft palate, will be attended with beneficial results, then following with astringent gargles of kino and myricin, hamamelin and baptisin.

If *otorrhœa* occur, it must be treated according to the indications. The treatment most successful, is long continued counter-irritation over the mastoid process, and the exhibition of such remedies internally, as we know, by experience, from the disease of analogous organs, improve the constitution, attend to correct the tendency of disorganizing inflammation, by alteratives, bark, the preparations of iodine, &c.

OTITIS frequently exists, and sometimes alternates in connection with strumous ophthalmia.

We often see a patient laboring under both, or, perhaps, disease of the eye in spring, and of the ear in the fall; the latter being a painless affection, and concealed from view, attracts little attention, or is generally attributed to stupidity. Unfortunately, in these cases, the mischief has been done; the thickening and deposit has taken place in the membrana tympani; the inflammatory action has subsided; treatment is not so successful. Improvement of the general health, and placing the patient in the most advantageous circumstances, may, possibly, in time, produce so much absorption, as will give a moderate increase of hearing.

I have arrived at the conclusion, that scrofulous disease of the organ of vision and hearing, often coexist, or alternate in the same patient; so intense is the diathesis as to produce deafness, and, in children, loss of speech. It is frequent from the age of one year to fourteen, and is undoubtedly due to a highly developed strumous diathesis. Hence, the great increase of scrofula from marriages with near relatives; as a consequence, our deaf and dumb institutions are occupied by their offspring.

The prognosis in these cases is not favorable to a recovery of hearing, yet it is not altogether hopeless, if the constitutional treatment is rigidly enforced.

Education must be brought to bear in the treatment of these cases; the patient should be encouraged to speak as much as possible, and not be allowed to use signs. He should be spoken to in a clear voice,

not too loud, and the mouth removed farther away from his ear daily, so as, if possible, to educate the sense, and increase the distance of hearing. His society should be persons of his own age, provided, they resort to no signs in communicating with him; and his mind should be engaged with some pleasing, healthful occupation.

EXANTHEMATOUS INFLAMMATIONS of the membrana tympani, accompanying scarlatina, measles and small-pox, commence in the mucus lining of the middle ear, or spreads into the cavity, from the mouth and fauces, through the eustachian tube. Sooner or later the membrana tympani is attacked, and is ruptured either by ulceration or from the pressure of the contents of the tympanum, and otorrhœa, with its long and varied train of consequences, ensues. This form of inflammation is noticed under the head of diseases of the cavitas tympani. The deafness attending typhus fever is a well known symptom, and generally passes off as the miasma is eliminated or neutralized.

CHRONIC MYRINGITIS.—Chronic inflammation of the membrana tympani is a frequent source of deafness. It is a sequelæ of all other forms of inflammation, and an affection that comes under our notice daily, where we have thickening and opacity, which, if long standing, is generally irremedial, and frequently accompanied with collapse. In external otorrhœa, the membrana tympani is in this condition; but there are two other forms of chronic inflammation, which we frequently meet with; the first, a perfectly painless deafness; the other, attended with paroxysms of pain, coming on at intervals, between which the patient is perfectly free from all uneasiness. This latter is very common in females from sixteen to forty, and depends on irregularities of the uterine function. The appearance of the membrana tympani is too peculiar to be mistaken,—thickened and opaque, with pin-head spots, of great density, of a pearly lustre, and on the least excitement or provocation, it becomes of a dark red color, with the membrane insensible. Many of these cases are treated, by ignorant physicians, as nervous deafness.

*The treatment* most successful is, regulating the various functions, more especially the uterine, the application of a solution of sulphate of zinc or sanguinarin, applied by a camel's-hair brush every other day, slight counter-irritation over the mastoid, and the exhibition of small doses of arnica and chloride of gold, and attention to the general health.

In some cases, a granular state of the membrane, not unlike a half-raspberry, is met with, the intervening portions between the reddish elevations being thickened and opaque, and no discharge. In these cases, I have succeeded well with a solution of sanguinarin or nitrate of silver; the former I prefer.

Thickening, morbid deposition, and opacity of the membrana tympani, with or without flattening, collapse, or drawing inwards of the tympanum, is a frequent result of inflammation. Exposed lymph, increased vascularity, hypertrophy of the mucous membrane, projections, &c., &c. are but the result of inflammations.

Calcareous deposits sometimes form between the laminae of the mem-

brana tympani in middle-aged females. The deposit is usually of a yellow color, irregular shape, hard and gritty.

*In the treatment* of thickening and opacity of the membrane, much, very much, depends on the state of the general health, the age of the patient, the time that has elapsed since the original inflammation. Its removal, in a great measure, must be by absorption.

The diagnosis must be guarded.

The treatment best calculated to meet the indications, being that we laid down for strumous myringitis. The local treatment, like that of chronic inflammation, consists in brushing over the surface of the membrane with a solution of sanguinarin, or phytolacin, or nitrate of silver, from ten to twenty grains to the ounce. After a few applications, the dermoid surface will peel off, and with injections of the chlorate of potassa, the membrane, which had become vascular and inflamed, will improve, and, under repeated applications, with a judicious use of alteratives and iodide of sodium internally, many cases get well. Counter-irritation should be kept up.

**COLLAPSE OF THE MEMBRANA TYMPANI**, or falling in toward the middle ear. There are two forms of this difficulty. In one, the membrane is thickened, opaque, and exhibits all the evidences of previous inflammation; in the other, its texture is unaltered; it has merely pressed inward toward the cavitas tympani, leaving the apophysis and the handle of the malleus projecting outward in strong relief. The former is accompanied by severe deafness; the latter with tinnitus, though deafness often accompanies it.

The cause is due to complete or partial closure of the eustachian tube, by which means the pressure of the external atmosphere must, of necessity, drive the membrane inwards, or it may be due to inflammation of the cavity of the tympanum, when adhesive bands have formed between the internal surface of the membrane and the neighboring parts.

This species of deafness is the most difficult to treat; but, unless some disease co-exist with it, it does not generally increase. If the membrane has pressed for any length of time inwards, it is difficult to restore its position permanently. Some persons inflate the drum by holding the nose, and making a forced respiration, when they desire to hear. In other cases, we can restore the natural position by eustachian catheterism; but, in both, the membrane returns to its former condition in a short time. Even exhausting the air in the external meatus, by means of a syringe, accurately adjusted to the outer aperture, does no good. On the contrary, the congestion produced by the exhaustion, is detrimental to the organ. Any good effects that I have ever obtained in the treatment of this affection, has been from the vapor of sulphuric ether. As a general rule, treatment holds out but little hope of amendment. It is very evident that, when the membrana tympani is thus collapsed and bound down, it ceases to vibrate on the impingement of sound.

**ARTIFICIAL PERFORATION OF THE MEMBRANA TYMPANI.**—This operation, and the best method of performing it, have been the subject of much discussion. Closure of the eustachian tube, accumulation of



extraneous matter within the tympanum, are conditions that some think demand it. If the cavity of the tympanum is filled with uncoagulated blood, and that it cannot find exit through the eustachian tube, an aperture may be made in the membrane to give it vent; but such an aperture being intended to close after it has performed its service, is very different from a perforation made by cutting out a portion of that structure to assist the hearing.

In cases of permanent thickening and opacity of the membrana tympani, which resist all local and internal treatment, are we justified in performing this operation? I believe it is efficacious; at least, I have found it so in my practice. It is true, that it requires very great caution and dexterity in its use, as irreparable mischief has often followed from it, more especially in the hands of those who are unacquainted with the anatomy of the ear.

In performing this operation, the fewer instruments about the better, as they are unnecessary, and occupy too much space in the speculum, so that it is impossible to see the membrane fairly, or how much we are cutting. My method of operating is as follows: having brought the membrane fairly within view, under bright, direct sunlight, I introduce a small sickle-shaped knife, with a double cutting-edge; and having made the patient inflate the tympanum, so as to render the membrane tense and pressed outward, I gently introduce the point of the knife into its interior, thin, vibrating portion, and then drawing it forwards, make a simple incision of the membrane, a line and a half in length. In some cases, a crucial incision is advisable. So easy and so simple is this, that the patient is unconscious of its performance until made aware of it by the rushing of the air through the aperture. In about a minute, a slight oozing of blood takes place from the edges of the aperture. In order to prevent its uniting, the cut edges are to be touched with a silver probe, which has been dipped into a fluid caustic, such as the nitrate of silver, heated to fluidity; and this might be repeated so long as the wound shows a disposition to unite, or until we have an opening of the requisite size.

**ACCIDENTAL PERFORATION OF THE MEMBRANA TYMPANI.**—Perforation, or an aperture of the membrana tympani, may arise from a variety of causes. It may be congenital or it may happen by accident, such as a penetrating instrument, a foreign body in the meatus, loud sudden noises, coughing, blowing the nose, diving, falls and blows upon the head. An ulcer may cut its way through it, and, from loss of substance, permanent opening may be the result; but the most frequent cause of perforation is otitis, or inflammation of the membrane, in common with the lining of the cavitas tympanum, when the suppuration which takes place, the pent-up matter bursts through the inflamed membrane as the nearest external outlet, and the case is then one of otorrhœa.

Perforation is not the result of inflammation of the membrana tympani itself.

In cases of perforation, the opening is generally opposite the aperture of the eustachian tube, which leads us to the inference that it is caused by a burst or rupture of the membrane, owing to a sudden jet

of air striking against the thin portion while in a state of tension, When inflammation happens during measles or scarlatina, very little attention is paid to the ears; the state of the fever, the general well-being of the patient being most looked after. We most heartily condemn this indifference to one of the most destructive causes of deafness. In these cases we usually have inflammation of the middle ear and membrana tympani, and, on examination, find them one uniform sheet of redness, without any appearance of sloughing or ulceration, and, in a few hours, the patient will tell us he is relieved of his pain, by having something burst; and, on examination, we find an opening in the membrana tympani.

In perforation, if the aperture is large, the patient will complain of some water getting into the throat in syringing. Where there is no obstruction in the meatus, we can, by directing a strong stream of sunlight through the speculum, easily detect the rupture, unless it is small or valvular. When a large portion of the membrane has been removed, as generally occurs in old, long-standing cases of otorrhœa, we can easily perceive it; in cases of extensive destruction of the membrane, we sometimes merely observe a red, florid, vascular surface.

If we have difficulty in detecting an aperture, we must direct the patient to force air into the drum, when the gurgling or whistling sound, produced by its transit through the rupture, will decide the question if the eustachian tube is free. In acute otitis, the meatus is thickened, and both it and the external surface of the membrana tympani, covered with a layer of white, macerated cuticle, and flakes of discharge. It is sometimes difficult, by mere inspection, to decide the question. Then we must call to our aid other diagnostic signs, such as air-bubbles, filling the bottom of the meatus, and coalescing upon the introduction of the speculum, when the membrane is perforated—a positive and never-failing sign; and, if we examine carefully, with a strong light, and keep the eye steadily fixed upon it, we will perceive that it pulsates—that its action is synchronous with the heart.

*The treatment* of perforation of the membrana tympani, and its success, depends on its cause, duration and extent; the older, the less likely to heal, and, if from ulceration, the most unpromising. An aperture may exist without otorrhœa, but, upon the slightest cold, otorrhœa will occur.

The prognosis is doubtful. I often succeed, and sometimes fail.

The constitutional treatment must not be overlooked; alteratives and the mineral acids, change of air, good diet. Locally, our treatment should be directed to the reduction of the hyperæmic swelling of the mucous membrane of the cavitas tympanum. Injections of warm water, carefully and gently. The removal of the secretion is difficult when the opening is small. The patient should endeavor to pass in air through the eustachian tube, so as to drive the secretion forward where it is more accessible. We must never lose sight of the condition of the mucous membrane of the pharynx. Frequent gargling is of great service; for, by this means, we increase the power of the canal, and favor the discharge of the secretion. The local treatment should be persevered with, and, by a judicious course of treatment, we often

succeed in healing the perforation—in effecting its closure. Many speak of favorable results from touching the edges with caustic, but I cannot recommend the practice; it is true, where the opening is small, and the patient under constant observation, we sometimes see a lessening of the opening by the inflammation excited by the caustic. The degree of hearing in these cases is various, reaching from total deafness almost to ordinary hearing. I have seen cases of perforation of both sides where the patient heard; and even a complete loss of the membrana tympani does not totally destroy the hearing, although it suffers severely from it. In order to diminish the evil results that follow perforation of the membrana tympani, it has often been attempted to rectify it by an artificial one.

**ARTIFICIAL MEMBRANA TYMPANI.**—A complete cure for deafness arising from a perforation of the tympanic membrane, by passing a portion of wool or cotton, moistened with glycerine, was brought to our attention some sixteen years ago. It has been tried over and over again, with but poor success, but of late years an improved method has been highly successful.

The old plan consisted of the introduction of cotton wool; this failing, a piece of cotton attached to a thread, and drawn through a silver tube about two inches long, so as to bring the cotton against the extremity; then wetting the cotton, introduce it, moving it about at the bottom of the passage until it reaches the spot where the hearing improves; the thread being unloosened, and the tube being withdrawn.

The next agent in repute, was the pellicle of collodion, as an artificial tympanum. Make a pellicle of the required form, attach its edges to the side of the meatus, by means of a small brush, armed with the collodion in solution.

In cases where the membrana tympani has been perforated, and where the above methods fail, great benefit will be derived from closing the tympanum with artificial means, by artificial membranes made out of india rubber. The plan I esteem best, and one I frequently resort to, is as follows: make a perfect model of the meatus in wood, its end being flat, and cut obliquely; this, previously oiled, should be dipped ten times into a solution of gutta serena and chloroform, until a film of the thickness of oiled silk is formed, which must be taken off the model in one unbroken piece; if properly made, it will fit the meatus exactly, and may be readily removed and replaced when it is necessary to clean it. It should not be allowed to protrude, but should be cut so as to lie entirely within the meatus.

In the application of these artificial tympanums, cleanliness is all important, and they should be removed every two or three days.

## DISEASES OF THE MIDDLE EAR AND EUSTACHIAN TUBE.

In our introductory remarks, we have seen that the middle ear, called the tympanum or drum, is a small irregular cavity, from three-eighths to half-an-inch in its greatest diameter, bounded externally by

the membrana tympanum, and internally by the labyrinth or inner ear. At the floor of the middle ear is the aperture, known by the name of the eustachian tube, which opens into the upper part of the throat, behind the inner opening of the nostrils. The middle ear in the dry bone, has five outlets, externally, into the bony meatus; internally, by two small apertures, which, communicated with the labyrinth, called from their shape, the round and oval windows,—two proceeding from the circumference; of these, that anteriorly and a little below the middle horizontal line, is the entrance of the eustachian tube, which communicates with the throat; and, one or more openings in the adult lead to the mastoid cells, superiorly and posteriorly. Malformation of the middle ear and eustachian tube are not uncommon.

**INJURIES OF THE INNER EAR, OR TYMPANUM.**—Hemorrhage takes place from the ears, and pours out of the external meatus, in cases of violent mechanical injury from loud noises, from strangulation and asphyxia. Bleeding from the ears, occurs in violent cases of whooping cough. Whenever the membrana tympani is pierced or ruptured by external violence, the cavity of the tympanum must be more or less injured, and the extent of the mischief will depend on the nature of the penetrating instrument, or foreign substance introduced. Aside from injuries directly applied to the ear, mischief of a much more serious nature may result from fracture of the base of the skull, or fissure passing through the fibrous portion of the temporal bone, and, consequently, the middle and internal ear. In such a case, hemorrhage from the ear is one of the earliest symptoms; yet, of itself, it is not a proof of fracture, as it may arise from concussion; in the latter, the blood is clear and florid; in the former, a clear, pale, straw-colored fluid flows from the ear.

**ACUTE OTITIS.**—Inflammation of the middle and inner ear are so well characterized in those of the membrana tympani, with which they are associated; their symptoms are nearly the same, and their treatment indicated, that it is only necessary to enumerate their different forms, peculiar symptoms, and results, and describe the proper mode of treatment.

**ACUTE OTITIS**, or inflammation of the lining membrane of the cavitas tympani, is one of the most painful affections in the catalogue of disease, and is sometimes fatal; it is a disease of youth and middle age, usually induced by cold, and any exciting cause which produces myringitis. The pain is of the most excruciating character, lancinating in the extreme, and, when it remits, it is replaced by a dull aching pain, and soreness, extending over the whole side of the head and down the neck. The feeling complained of in these moments of quiescence are those of a burning sensation. Hearing is good at the commencement usually, but, in the progress of the disease, when mucus accumulates in the cavity of the tympanum, audition is impaired, and subsequently total deafness ensues. Pressure on the palate, opposite the end of the eustachian tube, coughing, sneezing, blowing the nose, mastication and deglutition increase pain. There is also tinnitus of a low or loud hammering character.

The *physical signs* are: membrana tympani is of a brownish-red



color, bulged in the meatus; the patient cannot inflate the tympanum, either owing to obstruction from inflammation, extending through the eustachian tube, or from the cavitas tympanum being filled with extraneous matter; and the effort to do so increases the pain and bursting in the ear. In nearly all cases, the auditory passage is swollen and thickened, so as to prevent our view of the membrana tympani, and the auricle and mastoid region are involved.

**FACIAL PARALYSIS**, from extension of the inflammation to the bony canal in which the portio dura nerve passes round the tympanum. The mucous membrane of the throat is of a dark dusky red, the sub-mucous tissue infiltrated; also stuffing in the frontal sinus, suffusion of the conjunctiva and lachrymation.

Constitutional symptoms are, violent fever; white, dry, furred tongue; quick and hard pulse; dry, burning skin, constipation, great thirst; scanty urine, extreme restlessness, anxious countenance, intolerance of light, delirium and great cerebral disturbance.

The *terminations* are, first, resolution, in which the pain and swelling subside, and the ear resumes its healthy functions unimpaired. The second terminations, the pent-up matter having burst through the membrana tympani is discharged externally, and relief is instantaneous. The rupture is usually opposite the opening of the eustachian tube; the discharge is great, and the case degenerates into a case of internal otorrhœa, the most frequent termination of acute otitis.

The third termination is always dangerous, and sometimes fatal. The inflammatory process, spreading from the tympanal cavity, through the mastoid cells internally, or, by the bony meatus to the periosteum, covering the mastoid process externally, produces disease in that bone. There is danger of irritation being propagated to the dura mater and meningitis, or cerebritis supervening. I have seen in some cases, delirium, coma, intolerance of light, contraction of the pupils, tossing of the head from side to side, vertigo, incoherence, &c., &c.; caries of the bone, disease within the cranium.

*Treatment.*—The treatment that we recommended in acute myringitis, carried out more rigidly, will be useful here; the daily use of the alcoholic vapor-bath, the exhibition of aconite with tinct. asclepin, sufficient to control the circulation, relieving the bowels with podophyllin and leptandrin; for the alleviation of the intense pain, give a subcutaneous injection of morphia, or Battley's solution, with chloroform, or chlorodyne, or counter-irritation; or dry, wet cups behind the ear. Try the vapor of the extract of hyosciamus, or stramonium, or lobelia, and continue treatment actively and perseveringly.

As soon as it is controlled, put the patient on the C. syr. stillingia or frostwort, with iodide of potassa and sodium, alternating with irisin and phytolacin. So soon as it can be ascertained that the matter has been formed under the periosteum, or that the structure itself, or that the mastoid, or the bone of the mastoid process beneath it is deeply implicated in the inflammation, we should not hesitate to make free incisions for its relief.

**STRUMOUS OR SUBACUTE OTITIS.**—The occurrence of otorrhœa in phthisis, and in other tubercular or scrofulous affections, is worthy

of notice. In these cases, as a general thing, I find the membrana tympani perforated, and a thin, purulent discharge coming from the meatus. It is probable that this ulcerative inflammation extended into the tympanal cavity, through the eustachian tube, and so thinned the membrana tympani that it gave way in a fit of coughing, without the patient's being conscious of it at the time. No hope of improvement can be held out in such cases, but, by active, constitutional treatment, and using deodorizing injections or washes of permanganate of potash, or a solution of baptisin, or chloride of lime, or pyroligneous acid.

In otitis, of whatever grade, lymph must be effused upon the surface of the membrane, as well as pus into its cavity, in the same way as we find lymph, pus and serum in the pleura or the peritoncum; there is no doubt that, as soon as inflammation attacks the tympanal cavity, the eustachian outlet is closed, so much so, that it becomes a shut sac, liable to all the phenomena attending inflammation in the serous cavities. Hence, we have bands and adhesions passing between the sides of the cavity.

In exanthematous otitis, we have, properly speaking, an extension of the disease, let it be measles, scarlatina, &c., through the eustachian tube, and not only attacking the internal surface of the ear, but exhibiting itself in the form of glandular swellings, diffuse inflammation, and purulent deposits in the neck. Deafness is more frequent from this source than many suppose, and life is often lost from exanthematous otitis, either from hemorrhage or irritation communicated to the brain. Of the deafness of typhus and other fevers, there can be little doubt but that it is due to the operation of the miasma or poison upon the great nerve centres; hence, we have not only deafness, but various forms or manifestations of nerve affections or paralysis, such as loss of speech, paralysis of other portions of the body, which all readily yield to the eradication or elimination of the miasma.

There is no doubt but that deafness, as well as paralysis, is often due to congestion, or effusion on the brain, or to exhaustion of the nerve force of the brain proper.

OTITIS, WITH INFLAMMATION OF THE FACIAL NERVE.—This is frequently a result, frequently an accompaniment of otitis; loss of motion of those parts of the face supplied by the portio dura of the seventh pair of nerves. Paralysis is so frequent an affection, and its symptoms are so well known, that it is almost unnecessary to recapitulate them. It is not usual in violent otitis, extending to the periosteum and the mastoid cells, but in very mild cases, where there is slight inflammation, that this inflammation of the nerve takes place.

In the treatment of facial paralysis, the irritating plaster, kept constantly applied, an active cathartic of podophyllin and leptandrin, and a solution of the acetate of potassa, with tincture of asclepias, is good treatment to start with, if there is marked rigidity of the muscles of the paralyzed part; friction, nux vomica, and galvanism. In some cases, I get good effects from emetics; its revulsive influence is excellent. The hot-bath, the vapor-bath, the cold douche-bath, in appropriate cases, should not be neglected. Alteratives are almost always useful. C. tincture corydalis, with iodide of sodium, or the compound

syr. of stillingia, with the bromide of potassium, the iodide of iron or the iodide of ammonium, in five-grain doses, three times daily. At the time we are carrying forward this treatment, I have derived decided results from a combination of podophyllin, irisin, nux vomica, hydrastin and scutellarin. In addition to friction with the hand, we might resort to the hypodermic injection of strychnia, or the local application of aconite and cajeput. Stimulants are indicated; in some cases, cod-liver oil, the hypophosphites or phosphorated oil, bark, and all measures calculated to improve the nutrition and tone of the nervous system.

If the case does not yield, belladonna, ergot, sulphur, phosphorus, with quinine, iron, rhus radicans, and Indian hemp, should be tried. If there is an element of rheumatism or gout, the acetate of potash and cimicifugin should be freely given.

CHRONIC OR CATARRHAL INFLAMMATION OF THE MIDDLE EAR.—Catarrhal inflammation of the eustachian tube into the middle ear, and producing muco-purulent accumulation within that cavity, is a very frequent disease, more especially of the young. It is usually attended with symptoms of subacute inflammation in the membrana tympani, and the character of the two diseases is not essentially different.

The usual symptoms are, cold in the head, coryza, impairment of hearing, stuffing of the nose and frontal sinuses, thickening, increased redness of the faucial mucous membrane, a singing or buzzing in the ear, partial deafness—relieved by blowing the nose, coughing or sneezing, when a feeling is experienced of something giving way within the drum. It is very common among school children, and passes by the name of a cold, or is attributed to some careless stupidity of the child. In nearly all cases the disease spreads through the eustachian tube, the membrane of which, being thus closed, the free ingress of air to the tympanum is interrupted. There is generally a fullness in the ear, the hearing distance is variable; but, if not relieved by nature nor controlled by art, a general dullness is the result. If we apply the stethoscope while the patient forces a stream of air into the cavitas tympani, by holding the nose and making a forced expiration by introducing a catheter and employing the air-press, a gurgling or cracking sound is heard distinctly in that cavity, and very frequently it can be discerned within the mastoid cells, showing that thin mucus has collected in these localities, no doubt poured out from the inflamed and irritated mucous membrane. Pain is not usual. The mucous membrane of the throat is a degree redder than natural, although there is no soreness or uneasiness experienced in swallowing; the uvula is relaxed, elongated, by being tipped with a mucus envelope at its extremity. The glands of the throat are enlarged.

Patients laboring under catarrhal inflammation of the ears are very much influenced by the state of the weather, by the atmosphere, by variations in temperature; being always worse in damp, moist weather. The condition of the membrana tympani very much resembles strumous myringitis. The membrana tympani, in the early stage of the affection, exhibits a delicate pink tinge upon the inner surface—evidently the inflamed mucus layer shining through—and occasionally

presenting a mottled aspect posteriorly. The external surface of the membrane generally preserves its polish. In our examinations, when we get the membrana tympani fairly in view, with a clear stream of sunlight passing down it, through a tubular speculum, and then desire the patient to force the air into the cavity of the tympanum, we may not see the pink tinge at first, but it will soon become manifest, as the blood is forced into the structures surrounding the tympanal cavity.

CATARRHAL INFLAMMATION OF THE MIDDLE EAR sometimes follows an attack of bronchitis, even although the patient may not have been exposed to any of the influences likely to excite aural disease at the time. In the progress of this affection, the inspissated mucus accumulates, while some of its more fluid portion passes down through the eustachian tube; but, if this canal is obstructed by stricture, thickening of its lining membrane, or by its impaction with mucus, there is every reason to believe that the semi-fluid mass contained within the mastoid cells and tympanum can be absorbed, in a healthy constitution, by efforts of nature, or by correct local and constitutional treatment. That such does take place is no doubt correct; but, during the process of absorption, and as a consequence of the original catarrhal inflammation, the extensive mucus lining of the middle ear must become thickened and villous, in the same way as the delicately fine, smooth, polished, transparent, and intimately-adhering conjunctiva, lining the cartilage of the upper eyelid, becomes villous and granular in the progress of catarrhal ophthalmia.

Chronic inflammation of the mucous lining of the middle ear and eustachian tube, follow as the ordinary consequence of the preceding disease; and, as the mucous layer of the membrana tympani becomes more seriously affected, the other laminae of that structure participate in the morbid action, and thickening and opacity follow. Such results may also be detected by examination, assisted by the history of the case, and by eustachian catheterism, when necessary or applicable. We can also presuppose the amount of injury that would be likely to be inflicted upon all parts covered by that mucous membrane, and the mischief that would be likely to occur to the fine nerve filaments of the tympanic plexus, which ramify within and beneath it.

*Treatment.*—As a consequence of either chronic or catarrhal inflammation of the middle ear, thickening of the mucous membrane, contraction in the calibre of the eustachian tube, or an accumulation of mucus in the tympanum, may result. For the relief or cure of these morbid changes, catheterism of the eustachian tube, and the forcible injection of a stream of medicated air or water is sometimes justifiable, as the vapor of stramonium, or permanganate of potash, as a means of imparting a healthy action to the mucous surface. It is only by stimulating or improving the condition of the mucous lining of the tympanal cavity, that these medicated vapors are of any utility at all. It is in this way that the smoke or vapor of lobelia, or conium, or gelsemin, proves efficacious in cases complicated with relaxation and chronic thickening of the mucous membrane of the throat. If the thickening remains, or the disease cannot be removed by these local applications, what are we to resort to? Will the exhibition of our arterial



sedatives do good? Will evacuations absorb or remove the catarrh? Certainly not. Tonics here are demanded pre-eminently. The general condition of the system indicates the use of our most powerful tonics and vegetable alteratives, the C. tincture of bark or tamarac, the wine bitters, the C. syr. hypophosphates, iron, in alternation with irisin, phytolacin and menisperm. The remedies recommended under the head of strumous myringitis are appropriate here. In females, some preparation of iron, such as the tinct. ferri chloridi, given in alternation with the iodide of sodium—say

R<sub>x</sub>.—Iodide sodium;  
Aqua cinnamon, āā ʒi.—*M.*

Twenty drops *ter die*; or the bromide of potassium or ammonium. In delicate children, the syr. iodide ferri is very advantageous, extremely beneficial. Where we want cathartics, juglandin and leptandrin, or colocynthin and euonymin will be found useful combinations. A dry, warm equable temperature is not only the most agreeable to the patient's feelings, but materially improves the condition of the ear. If we have thickening or opacity of the membrana tympani, it should be treated with a solution of sanguinarin, iodide potassium, or nitrate of silver. A general attention to all hygienic measures, fresh air, exercise, and best blood-elaborating diet.

In nearly all of these cases we have general derangement of the digestive functions; we have a flabby tongue, bowels irregular, acid eructations; anemia is the aspect; spirits depressed, and the whole condition needs toning. In such cases, we can do little until we improve the alimentary condition; first arouse the liver, stimulate the appetite; the best remedies are, the C. podophyllin pill every night; bark, with the mineral acids, such as the nitro-muriatic or the elixir bark, and iron; an infusion of hydrastis and gentian. By attending to this condition, if it exists, we set things in shape for treatment of the affection.

Although we object to the use of antiphlogistic means in the treatment of catarrhal or chronic otitis, still some cases are much benefited by local depletion, repeated every few days, of wet or dry cups; or counter-irritation by the irritating plaster, or the painting with strong tincture of iodine. I am also partial to the use of astringent gargles, such as kino, alum, rhusin, myricin, geranin, in solution. So long as the throat exhibits symptoms of disease, they are efficacious. The act of gargling is highly beneficial, because it rouses the muscles of the pharynx and palate, and thereby stimulates the eustachian tube.

DISEASES OF THE MASTOID PROCESS AND OSSICULA.—As the otitis, from whatever cause it may have arisen, increases in intensity, or extends in duration, the neighboring parts become affected; periosteal inflammation denudes the margin of the auditory process, spreads over the surface of the mastoid region, and caries and exfoliation of the mastoid process follow, at some period more or less remote, but generally during the progress of the otorrhœa. If periostitis of the mas-

toid process can be detected, it should be treated with free and early incisions.

INFLAMMATION of the mastoid cells sometimes exist, when they are filled so completely as to bulge out the mastoid process. These cells have also been found filled with a cheesy deposit, or with a quantity of scrofulous matter, or true tubercular deposit; and the whole process has been found so soft that it could be cut with a knife. Fistulous openings are by no means uncommon in long and neglected cases of otorrhœa, and exfoliation of thin scales of bone often follow acute otitis. In bad cases, the whole mastoid frequently comes away.

DISEASES OF THE OSSICULA are very frequent in cases of otorrhœa, attended with destruction of the membrana tympani, in which these ear-bones are frequently discharged. They are liable to all diseases of bone—ulceration, absorption, caries, ankylosis, &c. They are sometimes dislocated one from another, or totally disconnected. Injuries of the tympanal cavity affect these bones the same as bones in any other part.

MORBID GROWTHS AND DEPOSITS of various kinds appear in the cavity of the tympanum. If in a state of chronic inflammation, and exposed to the action of the air, as in cases of otorrhœa, with perforation or destruction of the membrana tympani, the mucous lining is always thickened and highly vascular, pulpy, and extremely apt to give rise to unhealthy granulations and polypoid growths. The former must be destroyed by a solution of nitrate of silver or sanguinarin; the latter, if large, should be removed by torsion, or by snipping them off, or by their destruction. Exostosis does occur, but is rare.

DISEASES OF THE EUSTACHIAN TUBE.—Diseases of the eustachian tube are of common occurrence; such as inflammation, thickening of the mucous membrane and consequent closure, more or less complete, temporary or permanent, of the tympano-faucial canal. Every form of inflammation of the mucous membrane of the throat may, and often does, by continuity of surface, extend into the eustachian tube; and it is through it that the most severe form of otitis, derived from scarlatina or diphtheria, extends into the tympanic cavity. Extensive throat disease may, however, not affect the eustachian canal, or, if it does attack it, the patient may not become deaf, as we often witness in syphilitic disease of the throat and palatine arch.

INFLAMMATION OF THE EUSTACHIAN TUBE may exist as an isolated affection, and there are no distinctive symptoms aside from those detailed under the head of catarrhal otitis.

It is a good practice, in all cases of aural disease, to ascertain the condition of the eustachian tube, so far as permeability is concerned at least. It should be carefully tested by making the patient pass air into the tympanum, by holding the nose between the finger and thumb, keeping the mouth shut, and making a forced expiration. If the patient cannot inflate the drum, our next resource is the catheter and air douche. If the operation fails, and we are perfectly sure that the deafness arises from occlusion of the eustachian tube, by inspissated mucus or structural collapse, and that the membrana tympani and middle ear are free from disease, we may, having previously introduced

the catheter into the guttural orifice of the tube, carefully and cautiously pass a fine, flexible bougie through it into the remaining portion of the canal, up to, but, if possible, not into the tympanal cavity. The only instrument that I use is one made of gutta-percha, the end of which, when fully moistened for a little while, becomes soft and pliable, and still possesses sufficient resistance. In nearly all cases of puriform discharge from the ear, in which the greater portion of the membrana tympani had been removed, I have observed that the eustachian tube was not free. The occlusion occurs either at the time of the original otitis, which produced the otorrhœa, or subsequently, by the extension of the chronic inflammation and hypertrophy of the mucous membrane to that lining the eustachian tube. Dilatation, obstruction, collapse, obliteration, and imperforation, are exceedingly rare.

Foreign bodies have been found in the eustachian tube, and are the cause of deafness.

Cleft palate produces deafness in some cases, owing to the partial closure of the eustachian tube from the side of the divided soft palate lying up against it, owing to the deficiency of attachment of the levator palatæ muscle, allowing the lower portion of the walls of the eustachian tube to fall together.

The only treatment here is the performance of the operation for cleft palate, with the button-hole suture.

THROAT DEAFNESS.—Of deafness arising from disease of the throat, enlarged tonsils is the most frequent. In cases of enlarged tonsils, or elongated uvula, the hearing is generally imperfect, the voice thick and nasal, and the articulation so indistinct as to be almost unintelligible to strangers. In these cases, the mucous membrane is generally in a state of chronic inflammation. The treatment here is topical, constitutional and mechanical.

## DISEASES OF THE INTERNAL EAR.

We have seen, in the commencement of this subject, that the inner ear, or labyrinth, contains the true, sentient apparatus of hearing. It is wedged into the petrous portion of the temporal bone, near its cerebral surface. It is divided into the bony and membranaceous labyrinth. The bony one is divided into three parts: the vestibule, the semi-circular canals, and the cochlea; the vestibule, a small, irregular-shaped chamber, about one-sixth of an inch in its longest diameter. The labyrinth receives its vascular supply from arteries derived from the basilar, and sometimes the cerebral, which enter by the internal auditory foramen.

The seventh pair of nerves, having arrived at the meatus auditorius internus, divide into the portio mollis, or the auditory, and the portio dura, or facial.

MALFORMATION OF THE INTERNAL EAR.—Congenital malformations of the labyrinth have received much attention from the most eminent pathologists. The entire labyrinth has been found one undivided cavity, without a vestige of cochlea, vestibule or semi-circular canals,

and not having any communication with the tympanum. In other cases, the labyrinth is altogether wanting; a total absence of the part essential to hearing. The fenestræ are sometimes deficient; their membranes ossified. The osseous labyrinth, the cochlea, imperfectly developed or wanting. The semi-circular canals are the parts most frequently abnormal; and, in some cases, the auditory nerve is found weak, atrophied, or altogether wanting.

WOUNDS AND INJURIES OF THE LABYRINTH.—Injuries of the internal ear can only be produced by great violence applied to the skull, or from a small, sharp, penetrating instrument, passing through the tympanum into the labyrinth, by either of its two external apertures. Cases of this kind are rare, and our data are limited as to what are the precise symptoms of inflammation of the internal ear, distinct from inflammation of the *cavitas tympani*, arising either from injury or idiopathically, as the result of cold, scarlatina, or other special causes. We cannot have otitis, accompanied by high fever and attended with cerebral symptoms, without the structures of the external ear becoming engaged. If inflammation arises spontaneously in the labyrinth, without the tympanum or mastoid cells being previously engaged in it, it is very doubtful; but when, from ulceration during the progress of otorrhœa, the stapes have been removed, or the membrane of the *fenestra rotunda*, we can well imagine how easily disease may extend to the lining membrane of the labyrinth, and, finally, to the bone itself.

CARIES.—Caries occasionally takes place in the inner ear; caries of the entire inner ear, the cochlea, vestibulum and semi-circular canals. In these cases, the discharge, the paralysis of the face, total deafness, accompanied by occasional attacks of pain in the ear, pieces of loose bone appearing with the discharge. Caries is commonly the secondary affection, consequent upon neglected otorrhœa; hence the indispensable necessity of attending to all discharges from the ear in their early stages.

MALIGNANT GROWTHS from the inner ear are generally of a polypoid, fungoid or tubercular character. Osteo-sarcoma occurs in both middle and internal ears. Tinnitus aurium is but a symptom, and one that should be carefully studied, especially in cases where we do not find a sufficient amount of organic change in the ear to account for it in any other way. It should be carefully ascertained whether the noise experienced is the result of any local affection, cerebral disease or derangement of some distant organ. In certain cases of disease, unaccounted for by any aural affection, I have seen the patient die of softening, paralysis and apoplexy.

OTALGIA.—Neuralgic earache is a very common affection, although the existence of such a disease has been doubted by some aurists. My experience compels me to admit the existence of it. It is easily diagnosed, as we have every symptom of neuralgia. True, it is most common among young, hysterical females, or those suffering from uterine derangement, although males are sometimes affected. It usually occurs in paroxysms of very severe, excruciating pain, plunging or lancinating, of intermittent character. Upon examination, there is usually no



trace of inflammation, no organic lesion of any part of the ear. Its periodicity, its total freedom from annoyance during the intervals, are evident points as to its neuralgic character. The exciting causes are, functional derangement, acting upon the nerve that is the seat of pain. It may be caused by disease, either in the ear, the brain, or the spinal cord. Its sympathetic causes are, debility, irritation, wet or cold, irritation of the skin by eruptions, carious teeth, disorders of the alimentary canal or the urinary organs, or malaria.

*Treatment.*—The indications are, to remove all sources of irritation which are in the vicinity of the ear; to amend any disorder of the constitution that can be detected, and to alleviate pain. In the first place, the affected ear should be examined, and if there is a carious tooth it should be removed, and counter-irritation should be resorted to. The condition of the secreting organs, as well as the stomach, uterus and rectum, should be ascertained, in order to be sure that a morbid condition of these parts is not the source of the evil; and if pain and tenderness, or any sign of congestive disease, is detected, it should be removed by the warm-bath, aconite, and the local application of the veratrin ointment.

The constitution must be regulated. If there is paleness of the lips, emaciation and debility, iron, bark and tonics may be given with advantage. In all cases, the appetite, the tongue, the biliary and alvine secretions, and the state of the uterine system, should be attended to by the *C. podophyllin* pill, by *hydrastis* and *senecin*, and alteratives.

But if no cause can be detected for otalgia, I would give an emetic of the comp. tinct. *lobelia*, putting his feet in warm water, giving a diaphoretic infusion after the action of the emetic, such as

R<sub>y</sub>.—Con. tincture *asclepias*;  
Comp. tincture *serpentaria*, āā.

In half teaspoonful doses, inducing free diaphoresis, then give a pill composed of *leptandrin*, *podophyllin*, extract of *hyosciamus*; diuretics are of utility. An excellent formula is as follows:

R<sub>y</sub>.—Iodide of potassium, ℥i;  
Tinct. *gelseminum*;  
*Macrotys*, āā, ℥ss;  
Water, ℥iv.—*M.*

A teaspoonful every few hours, alternated with *cypripedin* and *scutellarin*. *Gelsemin* is a valuable remedy here, both internally and hypodermically; subcutaneous injections of a concentrated solution of the alkaloids, such as *atropia*; *morphia*, *gelsemin*, *strychnia*, &c., are attended with most salutary results. I have, in my practice, derived great benefit from the use of *guaiacum*, wine of *colchicum*, *aconite*, *scutellarin*, *valerianate* of zinc, *phosphoric acid*. I am also partial, if I suspect malaria, to give *gelsemin*, *quinine*, and *prussiate* of iron, in combination. Local agents are not of much utility, electricity, vapor of ether or opium, will sometimes give marked relief. I have also derived good results from *belladonna*, internally, sufficient

to produce dilatation of the pupil, and locally, in the ear. To prevent a recurrence, the two best remedies are, bark and iron, and a very excellent combination is the citrate of bark and iron.

An alterative course, and attention to the emunctories, will materially aid. Cases of intense exaltation of hearing, which sometimes last for weeks, are occasionally met with. Alteratives, and small doses of the chloride of gold, have met my best anticipations.

NERVOUS DEAFNESS.—This may be defined as an impaired functional power of the auditory nerve, irrespective of organic disease in the brain or structural alterations of the textures of the organ of hearing. That there are many cases of deafness, with or without tinnitus, which do not exhibit the slightest change from the normal condition in those parts of the ear susceptible of examination; in which the eustachian tubes are free; where the mucus lining of the tympanic cavities is healthy, in which every part of the ear is natural, and shows no symptoms of disease, every physician that has had experience will admit.

That diseases of the ear are hereditary there is little doubt, and next to the congenitally deaf and dumb, I believe that nervous disease is the most frequent form in which the disease is transmitted, in the shape of some congenital peculiarity or deficiency of the auditory nerve. Hereditary deafness is more prevalent than people imagine. I have seen a great deal of it; whole members of the same family, and its collateral branches, deaf of one ear, traceable for generations. In other cases, again, a defective or slightly abnormal condition of the auditory nerve may exist, and the germ thus laid, will insidiously germinate from slight causes, until persons will admit that they do not hear as well as others. In this way many deaf persons will trace back the first accession of their disease to mental emotion, shock, calamity, and, it is worthy of note, that in nervous deafness, the patients invariably hear worse on being excited, by suddenly seeing a stranger, or by any depressing emotion. It is more common among females than males.

Tinnitus aurium is a frequent but not an invariable symptom of nervous deafness. It may exist at the commencement of the disease, and be lost in after-life, but where the deafness is cerebral or congenital, it rarely supervenes. Nervous deafness may be due to cerebro-spinal disease, and here it is but a premonitory symptom, and generally incurable.

Total deafness, coming on gradually, and unaccompanied by any symptom, but noise in the ear, is a much less frequent affection than total blindness from amaurosis. Nervous deafness has been sub-divided into many varieties by different writers.

*Treatment.*—Nervous deafness must be treated according to its cause, as, for example, if it be due to the exanthemata, attention to the skin, the kidneys and bowels, and the administration of the sulphites, iron and bark, would be attended with good results; if it be due to anemia, hemorrhage, or leucocythæmia, attention to the improvement of the blood corpuscles, by iron, bark, hydrastin, phosphates, &c., will be indicated, and probably relieve the affection; and so on if

the cause is apparent, but if it is congenital, if there is an abnormal condition, or if the auditory nerve is deficient, no hopes can be entertained of effecting a cure. The treatment of nervous deafness has occupied the attention of the whole scientific portion of the medical profession, but yet no cure, no panacea has been discovered, for the functional impairment or malformation of the auditory nerve. Numerous remedies have been proposed by physicians, most of them of an empirical character. Emetics have been much praised by some active purgation; stimulating the mucus tract by others; counter-irritation by another class; galvanism, and fumigation of the cavity of the tympanum and eustachian tube, with medicated vapors, by others; *alteratives*, consisting of the chloride of gold, platinum, mineral acids, and our concentrated alteratives, by another portion.

If its probable cause is some constitutional defect, such as struma or paralysis, common sense indicates the treatment, which should consist of counter-irritation, moderate stimulation of the various secretions, the use of alteratives, such as gold, *con. stillingia alt.*, iodide of sodium, with, subsequently, tonics, as *nux vomica*, iron, bark, and no doubt if the loss of hearing arises from congestion, inflammation, effusion of lymph or serum within the labyrinth, it will be likely to succeed. If nervous deafness depends on some organic change or deficiency, it is hopeless; but if early application is made and energetic means adopted, and no organic structural lesion is present, some hope may be entertained. I have never known a case cured by the various vaunted remedies with which our public prints are filled; they are not only, as a rule, inefficacious, but highly prejudicial. To aid in effecting a cure, it is proposed and is practiced by every aurist, to wit: the introduction of the vapor of ether, or some other agent, into the *cavitas tympani*, through the eustachian catheter, to which is attached a flexible tube, communicating with an apparatus containing the gas. For the purpose of forcing the vapor through the tube, various ingenious devices have been resorted to, all having in view the one idea of getting the vapor in contact with the nerve apparatus of the inner ear.

Notwithstanding the laudatory merits of this cure for nervous deafness, I am satisfied, after nearly twenty years extensive practice in Europe and America, that it has not been attended with any success whatever, as a means of cure for nervous deafness, that its use is only a means of concealing the ignorance of the various pretenders that dabble in aural practice. It is of undoubted utility in certain cases, where the auditory nerve is, as it were, paralyzed or inert, and needed the influence of a stimulus; but of no utility where the nerve is functionally diseased, or atrophied, or absent.

The auditory nerve expanded within the membranous labyrinth, the cochlea and semi-circular canals, may, in certain cases, where we have dullness from thickening or inertia, be benefited by gas or medicated vapor, applied for the purpose of stimulating or renovating the dormant action of the part. Is there nothing, then, that can be done for nervous deafness where it is congenital? I have nothing to offer but the use of an ear-trumpet, and solemn, earnest advice not to consult with novices and quacks.

But, again, I would remark, for incipient nervous deafness, a great deal can be done, not only to arrest the disease, restore the hearing to its normal state, and frequently make a radical cure.

The best means of treatment are, counter-irritation, by the irritating plaster of the dispensatory, long kept up, to make a running sore; the judicious use of alteratives, such as chloride of gold, stil-lingia, irisin, menispermin, podophyllin, &c., adapted to the age, circumstances, and condition of the patient, and persevered with for months; relieving all exciting causes, such as plethora and debility, and following with nux vomica, cypripeden, scutellarin, hydrastin; improve the general health by every means, stimulate the nervous system by the above, with bark, iron, phosphorus and galvanism. Abstain from all topical agents, but electricity and counter-irritation.

### OTORRHŒA.

Purulent discharges from the ear are occasioned by all the inflammatory actions of the ear, such as inflammation of the external meatus, or disease of the bony canal, or inflammation of the tympanum, or disease of the adjacent parts; the membrana tympani having been ruptured or destroyed, so as to permit its escape; all these diseases, usually, either terminate in suppuration or effusions of serum, or mucus, or muco-purulent fluid; it necessarily follows that otorrhœa is a very frequent disease. In nearly all cases there is more or less deafness, uneasiness in the ear, and an offensive discharge. Otorrhœa is the result of numerous diseases, and from its importance, frequency, constitutional character, and the many serious diseases it gives rise to, it deserves more than a passing notice.

*Causes.*—The most frequent causes of otorrhœa are, inflammation attending the eruptive fevers, injuries; in our climate, its variableness, intense cold, bathing. Some families have a predisposition to it, and, in such cases, is generally associated with debility, scrofula, feeble vitality; various eruptions occurring in unhealthy children, extending to the ear, produce otorrhœa. Cases of otorrhœa are not unfrequent after violence, as syringing the ears. Otorrhœa, from disease of the external auditory meatus, is the most frequent cause of the affection. It is of frequent occurrence, and most prevalent in the young; but, although commencing in the young, it often continues through life. Farther than the discharge from the ears of an offensive purulent matter, and some dullness of hearing, there are no prominent symptoms, except the cachectic condition of the child. On examination, we usually find the bone in a carious condition. When the hearing is much affected, we find the membrana tympani opaque, and the dermoid layer, thick and vascular. In some cases, the discharge is produced by small polypoid formations in the ear, and, in others, by hardened wax. Otorrhœa from disease of the middle ear, occurs usually when the membrana tympani has been destroyed or ruptured, and may arise from disease of the ossicles or bony walls; generally a sequence of acute inflammation, which terminates in suppuration, the



membrana tympani giving way, and the inflammation assuming a chronic form. There is always impairment of hearing, and, it may be, pain or unpleasant sensations in the ear; if there is a slight opening in the membrana tympani, it may become closed; dizziness, ringing in the ear may exist. The condition of the tympanum varies exceedingly; sometimes only a slight change of structure; in others, the ossicles diseased cast off; the mastoid cells and eustachian tube are more or less affected, hearing nearly destroyed. Cases sometimes terminate fatally by extension of the irritation to the brain.

*Symptoms.*—Otorrhœa begins with fever, pain in the head, intense pain in the ear, and swelling of the glands of the neck. Soon afterwards, a serous, reddish discharge appears, which gradually becomes thicker and purulent; and, as this increases, the febrile symptoms disappear. The discharge, which is often excessively copious and fetid, is generally tedious in duration, like all diseases of a scrofulous taint, and, if neglected, or improperly treated, this disease is liable to produce fungous granulations, ulceration of the membrana tympani, suppuration of the whole tympanic cavity, and of the mastoid cells, loss of the ossicula, and caries of the temporal bone. On examination with the speculum, the whole meatus seems swollen, vascular, and covered with a slimy secretion. It is a disease that exhibits, more than any other, the strumous constitutional taint, and should be so regarded, for where it is traced to eruptive fevers, it is a question, in my mind, whether the white cell-blood of scrofula has not been generated.

The *prognosis* must depend on the cause, severity, and duration of the disease; the extent of the parts engaged; the presence of morbid growths; the age, constitution and habits of the affected person. If the disease has arisen from a constitutional taint, and of long standing, it is difficult to manage; in old cases, the discharge resembles that which arises from a fistula, and its treatment is tedious. If we have an aperture in the membrana tympani ever so small, through which the atmospheric air can come in contact with the delicate mucus surface of the tympanic cavity, although the discharge may cease for a time, it is liable to break out upon the slightest provocation. So long as polypus excrescences, or fungous growths, sprout from the cavity of the tympanum, amendment cannot be looked for until they are removed. If the bony portion of the meatus is denuded, or if caries or necrosis exists in any of the parts from which the discharge proceeds, it is futile to expect a healthy action, until the diseased bone is either absorbed or cast off. If we have reason to believe that the internal ear is engaged, our prognosis will be more unfavorable; and, where the discharge is from malignant disease, the case is more hopeless.

With respect to the nature of the discharge, it varies considerably at different times, from a thin, starch-like, sero-mucous fluid, containing scales of epithelium, to thick, yellow pus; it is, however, generally muco-purulent, containing shreds of mucus, which float through the water; it is sometimes thin, watery, sanguineous, and, in such cases, the disease is usually complicated.

*Treatment.*—In the treatment of otorrhœa, if the case is acute, it might be met with aconite, to control the circulation, and the C. pill podophyllin, to act upon the bowels, and giving liquid diet. Our next step is to cleanse the auditory canal, by syringing thoroughly with castile soap and water, or an anodyne fomentation, and then make a thorough examination of the affected ear. In the early stage, and the mildest form of this complaint, there is usually a pinkish, vascular and slimy condition of the lining membrane of the whole tube, and external layer of the membrane of the drum, which is thickened and opaque, and almost invariably has a fasciculus of red vesicles coursing along the line of the malleus. In this simple form of otorrhœa, I paint the surface affected with a solution of nitrate of silver, ten grains to the ounce, with a fine camel's-hair pencil, and repeated every third day.

But if the inflammation is very violent, locally, we would use cups over the mastoid process, and in front of the ear. This we would follow by the use of the vapor of water, and hot fomentations of poppies, or stramonium, or keep the ear covered with a poultice of the same; bran, in a linen bag, is excellent, frequently dipped in hot water and applied. Frequently much relief is obtained from the use of a lotion of equal parts of tinct. aconite, belladonna and hyosciamus, applied round the ear. If the fever is very intense, and does not yield kindly to the remedies suggested, the vapor of the tinct. opium. Stramonium, lobelia, might be tried with some hope of success, directly to the external meatus and membrana tympani, by means of a gutta-percha tube. Chloroform and ether may be used in the same way, as may also carbonic acid gas. Give the patient comfortable sleep by a subcutaneous injection of morphia.

When the pain and fever have been removed, and the chronic stage has set in, the treatment must be conducted on general principles, in the same way as we would treat any case of inflammation in scrofulous subjects. The general health must be improved by tonics, alteratives and aperients.

Among the best tonics are, iodide of iron, nitro-muriatic acid, Huxham's tincture bark, hydrastis, &c.

Among the best alteratives are, the C. syr. stillingia, with iodide potassium, C. syr. celastrus, irisin, gold, phytolacin, menispermum.

For an aperient, podophyllin and leptandrin, colocynthin and juglandin, and warm baths. The local disease might be attended to by the cautious use of astringent and stimulating injections. The various agents I use here as local injections are, solutions of hydrastin, myricin, rhusin, geranin, lycopin, alum, zinc, tannin. If the discharge is fetid, the permanganate of potash is most excellent, being an astringent, and correcting the disagreeable smell.

Cleanliness is most essential; syringing once or twice daily is important. In simple mucus discharge, without polypus, granulations, or affections of the deep-seated structures, it is the chief part of treatment. Allowing the discharge to accumulate is, undoubtedly, one of the principal means of perpetuating otorrhœa. When the meatus becomes a secreting cavity, with ulceration of its walls, it resembles a

fistula, and the longer it has existed, the more difficult it is to heal; and this fistulous character, especially in a narrow passage, promotes the continuance of a slight, thin discharge, long after the granulations or other producing causes have been removed. The action of the external air, therefore, on this secreting surface, can never be too much observed; hence the impropriety of using cotton wool, the use of which is never justifiable.

The best instrument for syringing the ear with, in these cases, is a gum-elastic bottle, and the operation should be done as delicately as possible, without hurting the meatus with the nozzle of the pipe, and without forcing in bubbles of air. The treatment of otorrhœa has been much reformed of late years. There has been a remarkable change in relation to the treatment. It has now been pretty well understood that most cases of otorrhœa depend upon a constitutional defect, and, having reason to believe that the state of the constitutional health assists to keep the local disease, and that, in all cases, we should endeavor to act upon the system, I am strongly in favor, in all cases, of counter-irritation. It is often wonderful in its effects. It is remarkable in its power in the prevention of otalgia. The irritating plaster is the best; next, tinct. iodine, made strong and more soluble by the addition of the hydriodate of potash.

When an old case of otorrhœa is ceasing, either spontaneously or as the result of treatment, it will generally be found that the dermal lining of the auditory canal becomes enormously thickened; and the cuticle, which is redeveloped, is of a white color, very like the appearance of the hands when they have been exposed for a long time to the action of water, being thrown off in patches, filling up the passage completely. To manage such a case, syringe the ear well, and, afterwards, all the thickened cuticle that remains may be easily removed through the speculum, by a spatula and the small forceps, and then the parts may be touched with a strong solution of myricin and sanguinarin, and the cure is complete.

In cases where otorrhœa has ceased for a time, particularly where the tympanum is open, a thick crust of inspissated mucus, like that which sometimes grows in the nose, in cases of ozoena, fills up the bottom of the cavity of the meatus, often resembling the end of a thimble; as soon as it becomes dry and hard, it acts as a foreign body, giving rise to itching, a feeling of stuffing, great uneasiness in the socket of the ear. These crusts must be cautiously removed from time to time.

OTORRHŒA is liable to various complications, which render the cure tedious, and multiply difficulties in treatment. The first of these complications is—morbid, vascular growths or granulations, covering the face of the membrana tympani, are not unfrequent. In such cases, the bottom of the auditory tube appears red, vascular, and usually the eustachian tube is blocked up with granulations, or closed by inflammation. The best and quickest mode of treatment is their eradication by the application of the caustic soda, after which, glycerine or diluted citrine ointment, or worm oil and tinct. capsicum.

POLYPUS.—Genuine polypus excrescences, fleshy, pedunculated growths, nearly colorless, having a thin, cuticular covering, unat-

tended with pain, not appearing as the result of inflammation, and not accompanied with discharge, are common as a complication of otorrhœa. They may occur at any period of the disease, from a few weeks after its commencement to the most advanced stage of chronic catarrhal inflammation.

In color, polypi are generally of a florid red, smooth and polished on the surface; their sensibility is not very great; they occur in a great variety of shape; some smooth, lobulated; others friable and gelatinous; all highly vascular. Polypi continue for years, and seldom or never cure spontaneously; and so long as they exist, otorrhœa will continue.

*The treatment* of this complication consists in the removal of the morbid growths, the employment of such measures as will prevent its return, (for it is apt to return and grow with rapidity,) and to give a healthy action to the part. For the removal of polypi, and other morbid growths, various mechanical means have been resorted to, but none of them can exceed the simple mode of torsion, (*Fig. 71.*) gradual

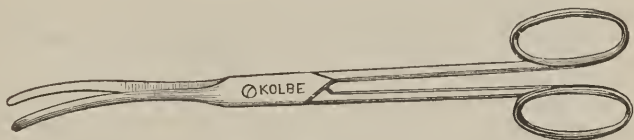


Fig. 71. Ear Forceps.

twisting, if it can be got hold of, or within reach. The next best method is its removal by the instrument for the purpose. A small, snake-like (*Fig. 72*) apparatus, or, if possible, snip it off, by means of

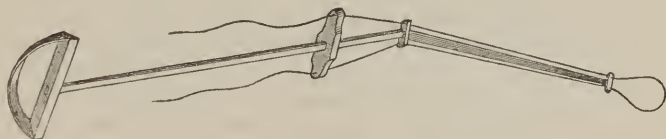


Fig. 72. Wilde's Snare, for Polypus.

very fine, curved scissors. If it cannot be removed in this way, it may be cut off by means of a loop of fine platina, carried through a hole in the end of a little silver rod, and slipped over the excrescence. Bleeding generally follows. Upon its subsidence, we should syringe the canal with tepid water, and again examine the ear, and, if possible, discover what portion of the polypus remains, and its root-point of attachment should be freely touched by caustic, in order to prevent its reproduction.

Another frequent complication and result of otorrhœa, is *caries*, especially of the mastoid process; a consequence of extension of inflammation from the mucous membranes of the ear into the mastoid cells. There is constant otorrhœa; the discharge is sanious and fetid. The meatus is choked with fungous granulations. Death may be caused by extension of the caries to the cranial cavity and suppuration



on the dura mater, or by inflammation of the brain and its membranes. Sometimes an abscess bursts behind the ear, or burrows amongst the muscles of the neck and points low down.

*Treatment.*—Tonics, alteratives, counter-irritants and injections of permanganate of potash, frequently repeated, to wash away the fetid discharge. Abscesses near the ear should be opened as soon as possible. If there is any secondary venereal taint, stillingia, and irisin, and anti-syphilitics generally.

FACIAL PARALYSIS is a frequent result of otorrhœa and caries of the temporal bone, produced by lesion of the portio dura nerve from ulceration, extending through the diseased aqueduct of the fallopius. The affection must be carefully distinguished from inflammation, extending to the neurilemma, and, perhaps, the nerve itself, from otitis or myringitis. In rare cases of double otorrhœa, facial paralysis occurs on both sides, and the appearance of the patient is remarkable; there is a preternatural fullness of both cheeks, a droop in both lower eyelids, and also in the external angles of the mouth, and a vacant stare of the countenance.

The most dangerous complication that can attend otorrhœa, is extension of inflammation and caries of the temporal bone, and metastasis of aural affections to the brain and its membranes; with this the profession has been well acquainted, and its fatal results have been evident and well understood. Cases of otorrhœa may continue nearly a lifetime, without causing greater inconvenience than the loss of hearing and unpleasantness of the discharges, until suddenly the patient becomes unwell, has a chill, which is attributed to cold; these symptoms are followed by irritative fever, pain is experienced deep in the ear and over the side of the head; and, in nearly all cases, soreness on pressure around the ear. To these symptoms succeed restlessness, sleeplessness, incessant delirium, coma. From the beginning of the attack, the discharge from the ear is greatly diminished, but seldom ceases. Fresh rigors occur, characterized by nervous symptoms of a peculiar character, such as unconsciousness, strabismus, and even convulsions; and, latterly, all the symptoms of effusion and suppuration within the cranium, supervene. The train of nervous symptoms which follow, is often anomalous, and the paralytic affections which succeed, are of an extraordinary character, explained only by the advanced notions of physiology of the brain and spinal cord. Continued rigors, convulsions, and coma, and death, sooner or later, close the scene.

The course of treatment must be energetic, varied to meet the exigency of any particular case; prompt application of remedies,—podophyllin and jalapin, local depletion and counter-irritation externally; free incisions, in all directions, early, freely and extensively made, radiating from the painful spot, when such presents itself over the mastoid process or elsewhere. The disease is often arrested, but more frequently the relief is only temporary.

Circumscribed inflammation and abscess of the brain, causing absorption and caries of the temporal bone, may produce otorrhœa, and the pus may be discharged from the ear.

## DEAF-DUMBNESS.

Persons who are born deaf, or who lose their hearing at an early age, are dumb also; hence, the compound term, deaf-dumbness. But the primary defect is deafness; dumbness is only the consequence of it. Children ordinarily hear sounds, and then learn to imitate them; that is, they learn to repeat what they hear other persons say. It is thus that every one of us has learned to speak. But the deaf child hears nothing, and cannot, therefore, imitate, and remains dumb. Individuals who lose their hearing later in life, are not to be classed among the deaf and dumb. Having learned to speak before their hearing was lost, they can readily communicate with others, though deaf themselves; and if they are educated, there is still open to them all the stores of knowledge contained in books, from which the juvenile deaf and dumb, ignorant of all written and spoken language, are utterly excluded. It is this latter class with which we have to do in this article. The term "deaf and dumb" is somewhat unfortunate, embodying and repeating a popular error, that the affliction is two-fold. It affects two organs certainly, but only in the way of cause and effect. The organ of hearing is wanting, but the organs of speech are present; they merely lack the means of exercise. The ear is the guide and director of the tongue, and when it is doomed to perpetual silence, the tongue is included in the ban; though if we could, by any means, give to the ear the faculty of hearing, the tongue would soon learn for itself its proper office. To correct this popular misnomer, the term deaf-dumbness is used.

This affliction is much more common than many persons suppose, but, happily for our race, the knowledge of its prevalence, excites in the minds of our people, a desire to alleviate and prevent it.

How far this affliction is inevitable, and how far preventable by our improved sanitary arrangements—by our free government—by our advanced civilization—by the forcible argument of profound medical skill and science—by a knowledge of the incompatibility of human temperaments—by the prudence of individuals, in refraining from marriage with blood relations, or unions with those who inherit scrofula or insanity, unions which are likely to result in the transmission of constitutional defects, are questions that are attracting the masses of the present day.

Philanthropists are also observing that certain localities are favorable for its development, that geological position, soil, aspect, elevation, humidity, dryness, salubrity or insalubrity of climate, denseness or paucity of population, unhealthy, crowded cities, acquired diseases, besides consanguinity of parents, may conduce to its development and propagation. When all the facts are fully made plain, and their truth placed beyond question, it is to be hoped that we shall see a diminution of this afflicted class. Regarding the language, literature, statistics, of this class of our community, it is not our purpose to discuss. In our census of 1860, it would appear that there is one in every 2,077 so afflicted—a lower rate than that possessed by any civilized nation of the present age.

With all our present means of gaining statistics, it is impossible to determine the question as to congenital deafness. Very great difficulties lie in the way of ascertaining this fact. The information to be derived from parents or friends, as to whether the person was born deaf and dumb, must be received with caution.

Physiologists have not decided at what age an infant first hears, or in what order its senses are developed. Taste, touch, and a certain amount of muscular motion, are put forth in the act of nursing, in all mammary animals. Vision seems perfect at birth, and, even before a child has nursed, it is attracted to the light, and evidently turns to the blaze of the fire or candle. A child recognizes its nurse at the sixth week, and, in a week or two later, it would seem to appreciate sound. There is no sense so variable in its development as speech; some speaking at twelve months, others, two and three years. Family peculiarity may have something to do with this; also, congenital malformation of the mouth and tongue.

True and uncomplicated muteism may be divided into two classes.

The *first* is congenital, or that with which the patient is born, either functional or organic; in the latter case it usually arises from some defect of organization, either in the mechanical apparatus of hearing, the auditory nerve, or in the great nerve centres.

The *second* form, is that proceeding from disease, acquired subsequent to birth, but which occurred so early in life that speech had never been fully attained, or, from the deafness being so intense, that speech was either entirely lost, or greatly impaired in after-life. In many instances of defective articulation, as well as severe stuttering, and of partial muteism, a disease very common, there is a peculiar narrowness, and an unnatural height of the palate, and some nervous affection. It is a well attested fact, that man, by organization and intellect, is able to exist in all climates, but, it is remarkably true, that he is not proof against the baneful influences of climate, nor can he escape those maladies which arise from the action of certain physical causes peculiar to depressing localities.

In countries where the large part of the people are miserable, living in low valleys, comfortless abodes, little light and heat, subsisting chiefly upon milk and farinaceous diet, and drinking impure water, is it surprising that deaf muteism exists? America, on the contrary, contains the least proportion of deaf mutes, and this can be accounted for by its comfort, its fertility, its luxurious atmosphere, and high sphere of civilization. It is more prevalent among males than females. My observation and experience in this affection are, that the organs of speech are neither malformed nor undeveloped, nor is there any abnormal state of the mouth or uvula. It is true, that there may be a narrowing of the chest, tubercular diathesis, which gives rise to a great mortality, and this great mortality is induced by the presence of scrofula, the most frequent source of muteism.

The *causes of muteism* may be divided into the *proximate* and *remote*, *original*, *organic* defect, usually some malformation of the organ of hearing, owing to arrest of development; or, it may be acquired by



disease. Certain special causes seem to influence the production and propagation of muteism.

Fright, experienced by the mother while pregnant; family peculiarities or hereditary taint; too close consanguinity, or the intermarriage of near relatives, parties of the same temperament.

Deaf-dumbness may be due to fright, experienced by the pregnant mother, or accident, or disease; due to shock or mental emotion, as well as to incompatibility of temperament; too close consanguinity of parents, strumous diathesis, are very evident causes.

Is deaf-dumbness curable? Most assuredly not; except by some miraculous interference. I do not honestly believe that the true deaf mute ever was made to hear, and those who lose their hearing early in life, never having acquired the faculty of speech, come within the same category.

If the patient has ever spoken, every possible means should be taken to keep up the articulation, even although he may not be able to hear himself speak. Many cases of the so-called cures of the deaf and dumb are recorded, such as the ringing of bells, to educate the ear, or other means for producing sounds; perforating the membrana tympani, and injecting the cavity with gas; galvanism and electricity have had their day; the actual cautery, and other means of counter-irritation have been highly extolled.

It may, without dispute, be received as a truth, that this affection is incurable; seeing this is so, the mental condition of such persons is peculiar; so entirely unlike any other branch of the human family, that it is difficult, without very close attention, to obtain an accurate conception of it. Every one admits the difference between a hearing, and a deaf child, but very few who have not had their attention drawn painfully to the subject, possess any adequate notion of the difference, nor could tell where it exists. Some compare the deaf to the blind, though there are no just grounds of comparison. The blind are more dependent than the deaf and dumb; the relative disadvantages of the two classes do not admit of a moment's comparison. The blind man can be talked with, and read to, and is thus placed in direct intercourse with the world around him; domestic converse, literary pleasures, political excitement, intellectual research, are all within his reach. The person born blind, is totally excluded from them; the two afflictions are essentially dissimilar. Each of them affects the mental and physical constitution; but blindness falls lightly on the mind, while the effect of deafness is the extreme reverse of this; it touches only one bodily organ, and that not visibly, but the calamity which befalls the mind is one of the most desperate of human woes. The calamity under which the born deaf labor, is not merely the exclusion of sound, as it is the complete exclusion of all that information and instruction that are conveyed to our own minds, and all the ideas which are suggested to them by means of sound. The deaf know almost nothing, because they hear nothing. We, who do hear, acquire knowledge through the medium of language, through the sounds we hear, and the words we read every hour. But, as regards the deaf and dumb, speech tells them nothing, because they cannot



hear, and books teach them nothing, because they cannot read, so that their original condition is far worse than any others. It is cheering to reflect that deaf-dumbness is on the decrease, no doubt owing to our rapid improvement in sanitary science, to our quick appreciation of the pernicious results of intermarriage and incompatibility of temperaments, to our high appreciation of female character, and the proud position she is assigned on this continent, as the mother of heroes, to her welfare, comfort and felicity, and the high elevation of her sex, as well as to the inestimable blessings which Jehovah has poured down on this great and free continent, *first* in progress, *first* in amelioration, and *first* in all the essentials of a heaven-born race.

It would take volumes to detail what the never-wearying philanthropists have done, and are now doing in every civilized country, for the sake of these unfortunates. Institutions of every description have been raised for the purpose, and are supported, and ingenuity and genius, have been taxed, for the perfection of means to ameliorate and improve these unfortunates; and it is no small honor to our country, to the present century, which has won so many proud distinctions in other fields of benevolence, enterprise and usefulness, that it should have done so much for those, who, for so many generations, were totally excluded from the light and knowledge.

### DISEASES OF THE FACE AND NOSE.

**SALIVARY FISTULA.**—This is generally found in the neighborhood of the duct of the parotid, which has been perforated by a wound or ulcer, so the saliva dribbles out on the cheek. The application of the caustic potash to the margin of the apertures; if this is not sufficient, puncture the mouth, through the fistula, in two places; pass a thread of silk through the apertures, and secure the two ends in the mouth by a knot.

**FOREIGN BODIES.**—If such exist in the nostrils, they should be removed by a curette, or scoop, or bent probe. If they cannot be brought through the nostrils, they should be pushed into the throat. They should be removed early.

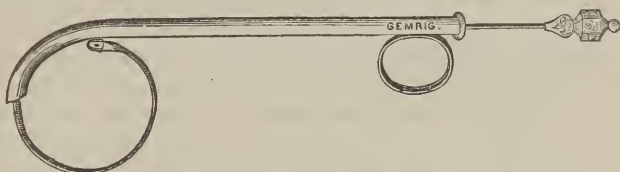
**EPISTAXIS.**—Hemorrhage from the nose may be caused by injury, by general excitement, plethora, determination of blood to the head, a suppression of some discharge; it may be due to some obstruction of the circulation, by disease of the heart or liver, to a watery condition of the blood, with relaxation of the blood-vessels, as in scurvy, purpura and fevers. Exhausting epistaxis may be the immediate cause of death in leucocythæmia.

*Treatment.*—This must be regulated according to the cause; if to plethora, mustard rollers to the limbs, warm bath, free purgation, with aconite, veratrum, &c., as arterial sedatives; if due to disease of the heart, cactus grand and digitalis; if to the liver, nitro-muriatic acid and leptandrin; if to an absence of the menstrual flow, macrotin and caulophyllin, &c.

A dose of lobelia is excellent in epistaxis. A more rapid coagulation of the blood takes place under the nauseating influence of the

remedy. The oil of ergot, matico leaves, benzoic acid, alum, oil of turpentine and erigeron, salt in solution, perchloride and muriated tincture of iron, lycopin, &c., have all been highly extolled as styptics.

A very simple means of arresting the hemorrhage consists in closing, with the opposite hand, the nostril from which the blood flows, while the arm of the same side is raised perpendicularly above the head; the raising of both arms, and applying cold to the nose and nape of the neck, is often successful. If the hemorrhage is obstinate, and the ordinary medicines have failed to arrest the bleeding, the posterior nares must be plugged, and the best device for the purpose is either the intestine of a chicken, or the gum-elastic bag made for the purpose, inserted and then inflated. Or the plugging may be easily effected by Bellocque's canula, an excellent instrument for plugging the posterior nares.



**POLYPUS.**—Polypus is a tumor generally originating in a small pedicle. In some cases, polypus of the nose commences as a small swelling of the pituitary membrane, and gradually enlarges until it fills one nostril and entirely obstructs the other; others begin at a carious point of bone. Some are soft and gelatinous, so that they bleed at the slightest touch; others are hard, compact, even as scirrhus. They always impede the breathing, making the patient breathe through the mouth. A large polypus presses upon the spongy bones, forcing them down on the upper maxillary, obstructing the lachrymal duct, forcing the tears to flow over the eyes and cheek. When both nostrils are occupied with polypi, the patient breathes with difficulty, and with a peculiar rattling noise. The most common form of nasal polypus is the gelatinous, resembling, in consistence, color, shape and size, an ordinary oyster. There are several varieties of the affection.

Polypus is supposed to originate in some constitutional disease. As it almost always protrudes from a mucous membrane, it is kept moist by the secretion flowing over it. Polypi usually hang by a narrow pedicle, or present a bloated or wrinkled appearance; they are very vascular, and are apt to bleed if they are irritated. The common gelatinous polypus is of the consistence of jelly; it is a tumor, pear-shaped, yellowish, slightly streaked with blood-vessels, attached by a narrow neck to the mucous membrane.

*Symptoms.*—The patient has a constant feeling of stuffing and cold in the head, which is increased in damp weather. If he force his breath strongly through the affected nostril, while he closes the other, the polypus will be brought into view. There are usually more than one, and when removed are liable to return. If allowed to remain, it

increases in size, blocks up the nostrils, displaces the septum, obstructs the other nostril, causes deformity of the cheek, prevents the passage of tears, and it may create symptoms of irritation of the brain.

*Treatment.*—Before Beach's time, no treatment was relied upon but excision, which was extremely unsuccessful. Constitutional treatment has been successful. The most useful remedies are, stillingia, iodide potass, phosphorus, staphisagria, gold, teucium, sanguinarin, nitro-muriatic acid, sulphur; at the same time cause the patient to snuff up the nostril some sanguinaria, and gargle the throat with the same. In most cases, the polypus will break in twenty-four hours, and discharge a large quantity of gelatinous fluid. It is well to continue the remedy until the inner surface of the nose is somewhat raw, and occasionally after, combined with myricin. The tincture of teucium, thuga, may be applied with like good results. Nitro-muriatic acid has also been successful. Where it is within reach, the above plan is most excellent. The other methods of cure consist in the knife, forceps, ligature, torsion.

The mode of removal by the forceps is to insert them, well-oiled and warmed; get hold of the polypus by the base, and cautiously give a few turns of the instrument, first in one direction and then in another; then forward, when it generally gives way. The place of attachment should be painted daily with nitric acid. Ligature is easily applied by the instruments for the purpose, when the polypus will slough away. Torsion is one of the best means at our command, where it is accessible. It consists in giving the polypus two or three turns daily, and the result is the death and sloughing off of the polypus. The extraction of nasal polypi, whether by the forceps or ligature, requires a knowledge of the position and relation of the parts.

The hydatid carcinomatous and fungoid polypi are met with usually in persons of a cancerous cachexia. The consistency of the tumor, the character of the pain, will be the guiding land-marks. They should never be interfered with by the knife, but treated, if possible, by constitutional measures.

**INFLAMMATION OF THE MUCOUS MEMBRANE OF THE NOSE**, whether it be acute or chronic, produces a feeling of weight or stuffing, as if from a cold in the head. There is always more or less discharge, which is very fetid. This is a very common complaint among scrofulous children, and, if neglected, may lead to obstinate ozæna. Packs to the nostrils, the inhalation of medicated vapors, counter-irritation to the back, an active condition of the liver, thorough hygiene, and the constitutional treatment for scrofula should be enforced. If red, fleshy eminences appear, they should be touched with dilute nitric acid.

**OZÆNA.**—Ulceration of the lining membrane of the nostrils, attended with fetid discharge, and sometimes followed by destruction of the cartilages, by caries of the bone of the nose. In some cases, there is a large accumulation of thick mucus, or incrustations, which sometimes block up entirely the nasal passages. If it is not arrested, it is prone to spread among the cartilages and bones of the nose, and it may extend to the cheek.

*Causes.*—The latent cause is scrofula or syphilis, excited by cold or irritation.

*Treatment.*—We must depend on our anti-scrofulous and anti-syphilitic remedies—stillingia, iodide of potass, gold, nitro-muriatic acid, irisin, phosphorus, cinchona, lycopodin. The use of injections, thrice daily, with the permanganate of potash, in solution, of two or three grains to the ounce, is attended with the most happy results; or the chloride of lime, sesqui-carbonate of potash, dilute pyroligneous acid, &c., &c.; inhalation of the vapors of creosote, myrrh, &c. If the bones are affected, a good application of sesqui-carbonate of soda or sulphate zinc. Enforce the treatment recommended for scrofula and syphilis.

## DISEASES OF THE ANTRUM.

The mucous membrane, lining the large cavity in the middle of the superior maxillary bones, is very liable to several morbid affections. The most important of these are, inflammation and secretion of pus. This known as abscess in the antrum, commonly caused by irritation and ulceration, excited by the penetration into this membrane of disease in a decayed tooth.

*Symptoms.*—There is permanent uneasiness, or aching of the cheek, preceded, probably, by acute, throbbing pain, fever, rigors, and followed, if an opening is not soon made, by a slow and general enlargement, which, if permitted to increase, causes bulging of the cheek, obstruction of the lachrymal duct, depression of the hard palate, loosening and dropping of the teeth, closure of the nostrils. It sometimes breaks in the mouth, at other times externally.

Besides the irritation of the decayed teeth, abscesses of the antrum may originate from violent blows on the cheek, inflammatory affections of the adjacent parts.

*Treatment.*—The treatment of abscess of the antrum consists usually in extracting one of the molar teeth from the affected side, and perforating the floor of the antrum, to permit the escape of the accumulating fluid. The sinus may then be washed out with some mild astringent, to restore the parts to healthy action; and the usual means for the removal of inflammatory and ulcerating disease may be employed.

The treatment of purulent secretion of the antrum requires a good deal of tact. If destructive caries has attacked the bone, an operation to remove the offending part should be resorted to, and the general treatment of caries and necrosis be adopted.

**DROPSY OF THE ANTRUM.**—The antrum may become enormously distended with fluid, and its parieties thin; this happens in consequence of its natural clear secretions being accumulated; if the aperture into the nostril has become obliterated, an opening must be made.

**FUNGUS TUMORS OF THE ANTRUM** arise from ulceration of the lining membrane of the antrum. The ulceration generally occurs in patches over the surface of the membrane, and in the course of time produces a lesion of its vessels. When this morbid condition is irritated, their growth is really astonishing—the antrum becomes filled



with a fungous growth; the cheek begins to enlarge; the symptoms resemble those of purulent secretion; but it is readily distinguished by the discharge from the nose, by the fetor peculiar to fungous affections. The remedy is extermination, entire removal of the fungous tumor.

Malignant disease is also developed in the antrum. The treatment is the same as in cancer.

A non-malignant or fibrous tumor is not unfrequently developed in the antrum, or on the external surface of the superior maxillary bone. A section of such tumors appears of a dense, fibrinous, homogeneous mass. Its origin is generally ascribed to some injury or disease of the teeth. It is easily distinguished from malignant disease by observing that the growth is slow, its surface lobulated, it feels hard and elastic, interspersed with bony particles; that although it becomes very large, and the superjacent skin may become turgid and purple, with distended veins—still it does not become incorporated with the tumor, that even if ulceration should occur, it has no characteristic of malignancy, but readily heals on the removal of the exciting cause.

*Treatment.*—The tumor should be extirpated entirely, if of moderate size.

**HARE-LIP.**—The simplest degree of this deformity, is simple hare-lip, in which the lip is fissured only on one side; it may be complicated with partial or complete fissure of the palate. The greatest malformation of this kind, is double hare-lip, with fissured palate. The arrest of development occurs only in the upper lip; the fissure never occurs in the mesial line, but always under one or both nostrils, and the deformity may vary from a notch to a complete fissure, extending close into the nostril. The only point of interest is the treatment. The operation for the removal of this difficulty should be performed immediately after birth. The edges should be well pared, and hare-lip pins inserted, two-thirds the thickness of the lip, from its anterior face. A sufficient number of pins should be used, and the figure eight, with repeated turns of lead wire, over each, should be resorted to in preference to silk. If the hare-lip is double, operate on both sides at once. If the child is old, and the teeth project, offering an impediment to the success of the operation, extract the teeth. In complicated cases, the hare-lip spring should be used. This encircles the head from behind, and the two ends, furnished each with a pad, rest upon the cheek, and support the lip in a steady position.

**FISSURE OF THE PALATE.**—In addition to defective development of the lip, we meet with it also in the soft and hard palate. In some cases merely the uvula is fissured, but the cleft may extend forwards as far as the lip, and be combined with hare-lip. The fissure in the hard and soft palates, is invariably in the mesial line, when it extends forwards through the alveoli; it diverges somewhat to one side. In some rare cases the fissure is double. This deformity causes the greatest difficulty in nursing and swallowing, and, if the child grows up, it causes a serious impediment to articulation.

*Causes.*—The causes of this deformity are not well understood,

some suppose it to depend on marriage of persons of like temperament, others to struma, and disease of the nervous system.

*Treatment.*—The best mode of treatment in this affection is by operation—paring carefully the edges of the fissure, and applying the button-hole suture. The patient must be put on liquid diet, milk punch and beef essence. Cases treated with the button-hole suture do remarkably well.

CANCER OF THE LIP may begin in any of the forms described under the head of cancer, but most frequently as a fissure, attributed to the irritation of smoking, which gradually degenerates into a foul ulcer, with hardened, base and ragged edges. The treatment is the same as cancer.

CANCERUM ORIS.—A gangrenous stomatitis or cancrum oris, or a phagedena, gangrenous affection of the lips and cheek, will destroy, in a short time, a large portion of the soft parts of the lips and face of young, ill-fed, squalid children of our cities. It would appear to be a disease of debility, and to be induced by a want of proper food and fresh air, and a neglect of cleanliness. It is most prevalent during the summer months, when increased temperature favors the decomposition of animal matter. It may depend on some electrical condition of the atmosphere. It is very apt to follow measles, scarlatina, or any debilitating disease. It generally begins as a shallow ulcer, on the lip or inside of the cheek; its character is peculiar, dirty gray or ash-colored, black edges; other cases commence with an exudation of a pale, yellow, fibrinous matter, resembling the diphtheric exudation. The face is swollen, and the breath is fetid. If the disease is not arrested, the ulcer becomes gangrenous, destroys the cheek and gums, the teeth drop out, typhoid symptoms supervene, and death, from exhaustion, takes place. The inflammation is unhealthy. The most aggravated form of this affection begins as a black, gangrenous spot, which rapidly spreads. The constitutional symptoms are always well marked, extreme weakness and prostration, irritable stomach and bowels, rapid, feeble pulse, and the stupor of typhus.

*Diagnosis.*—This affection invariably commences on the cheek; the ulceration or gangrene is circumscribed. It cannot be mistaken.

*Treatment.*—Evacuate and correct the secretions of the stomach and bowels by mild and efficient purgatives. The strength must be maintained by beef essence, milk punch, nutritious diet, cinchona, hydrastin, phosphates, chlorate of potash, gold, irisin, stillingin, baptisin, iron, &c. To excite a healthy action in the diseased part, use stimulating lotions, as solutions of permanganate of potash, sulphate and chloride of zinc, chloride of lime, nitric acid, and, if these fail, the vegetable caustic.

SMALL TUMORS.—These consist of obstructed mucus follicles, and are met with on the inner surface of the cheeks and lips.

RANULA is a tumor of the same character. They are best treated by applying nitric acid, and using a wash of tinct. myrrh and borax.

TONGUE-TIE.—The tongue may be unnaturally adherent to the sides, or to the under surface of the mouth, so that nursing may be prevented. The adhesions must be cautiously divided with a bistoury,

and the bleeding controlled by the perchloride of iron. Genuine tongue-tie is where the bridle of the tongue is so short as to reach nearly to its tip, and interfere with its motions. This can be remedied only by dividing the edge of the frenum with a pair of pointed scissors.

**GLOSSITIS.**—Inflammation of the tongue is by no means a common affection, but now and then cases occur in which this organ is so enormously inflamed and swollen, as to place the sufferer in immediate danger of suffocation. It may arise spontaneously, may proceed from derangements of the stomach, sudden changes of temperature, the application of poisonous or irritating substances. It runs its course rapidly.

**Causes.**—Derangements of the stomach, exposure to strong currents of air, mercurial salivation, small-pox, the application of irritating substances.

**Treatment.**—If there is danger of suffocation, it is not prudent to wait for the action of medicines; free, deep, parallel incisions made into the surface of the tongue, will afford immediate relief, then allow time for the action of remedies. Begin with an emetic, then follow with an alcoholic vapor-bath, then an active cathartic; then the special treatment should be resorted to. In the febrile state, resort at once to aconite and belladonna, combined with asclepin; the mucilage of slippery elm should be used as a lotion. If it proceed from mercurial poisoning, iodide potass, gold, nitro-muriatic acid, irisin; herpetic glossitis is best treated by same remedies.

**CANCER OF THE TONGUE** presents itself as a foul, excavated ulcer, hard base, prominent edges, with burning and lancinating pain. Remove by the caustic potash, if admissible; if not, use the knife; constitutional treatment must be rigidly carried out.

Ulcers on the tongue present every characteristic of ulceration. They are usually attributed to diseased teeth, gastric disturbance, or derangement of the health.

The indications of treatment are, to remove all sources of irritation, to stimulate the liver, bowels and kidneys, and skin, regulate the diet, and support the strength. Nitric acid, diluted, is one of the best local applications.

## TEETHING.

Of all the occurrences to which children are liable, not one is attended with such grievous and distressing symptoms as difficult dentition. With regard to the time of their cutting teeth, no fixed or exact period can be laid down, as some cut their first tooth at three or four months old, whilst others, again, have not the smallest appearance of a tooth before the ninth or tenth month.

Dentition generally commences, in the majority of children, between the fifth and eighth months; and the process of the first teething commonly continues to the seventeenth month, at the least, and often much longer. The two fore-teeth of the under jaw are those which usually appear first; and, shortly after these, are observed two more,



coming out in the upper jaw, exactly opposite the two former. These are succeeded by the four molars, then the canine; and the last of all of an infant's first teeth, their antagonists, or the eye-teeth, making, in all, sixteen. This, as is well known, is the ordinary number of a child's teeth, as they are called; but some infants cut four double-teeth in each jaw, instead of only two, making the whole number twenty.

In children who are healthy and strong, the process of dentition goes on as has just been described, and the teeth are all cut soon and easily; but, in unhealthy and weak infants, the process is both slow and uncertain; accordingly, children sometimes cut their teeth irregularly, both by the teeth appearing first in the upper jaw, and also at some distance, instead of being contiguous to each other, which may be regarded as an indication of difficult or painful dentition. It may also be remarked that the ease or difficulty of circumstances, under which the two first teeth shall happen to be cut, the succeeding ones generally making their way in a corresponding manner.

At six or seven years of age, all children shed their teeth in a gradual manner, and get a fresh set; and, about the age of twenty-one, they get one more in the corner of each jaw, which, from their appearance at that period of life, have been named their wisdom-teeth.

Dentition is usually preceded by or accompanied with various symptoms; the child becomes fretful, nutrition seems to be impaired; the gums swell, spread, and become hot, tender; the child is continually working with its mouth, desiring to bite something; irritable, fretful, fever, increased heat in the head, or pallor and dilatation of the pupils; there is often a circumscribed redness in the cheeks, with eruptions on the skin, especially on the face and scalp; a looseness ensues, with griping stools of a green, pale or leaden-blue color; sometimes mucus, and the child is watchful and peevish; starts during sleep, throws its arms, and seems convulsed in particular parts of its body. In almost all cases, the child shrieks frequently, thrusts its fingers into its mouth. These symptoms are sometimes followed by cough, difficulty of breathing, emaciation or marasmus, hydrocephalus, and very frequently by much febrile heat, thirst, convulsions, and a bad train of circumstances.

When, however, the child's secretions and excretions are natural, very few of the violent symptoms, attendant of much irritation, occur, and we need not then apprehend any bad consequences from teething. Infants cut their teeth more readily and more easily in winter than in summer, and those of the sanguine temperament, more readily than those of the lymphatic; and children whose secretions are regular, the easiest of all.

The system during dentition being irritable, strong, plethoric children suffer more than the apparently weak and delicate; and it is usually by acute fever or convulsions that infants are carried off. The extremes of high health and of debility, are both attended with some degree of danger; the one being exposed to acute fever or convulsions, the other to slow hectic or marasmus. It is true, that with proper treatment, many of these symptoms will pass off without danger to the



child; but very often they do not, giving rise to a low form of fever, brain disease, convulsions and derangement of the bowels.

*Treatment.*—The irritation of teething mostly causes a determination of blood, and the gums become swollen and tender to the touch; there is fever, irritation of the nervous system, with occasional convulsions. In these cases, where the gums appear considerably swollen, and the child seems to suffer from the stimulus of the tooth in working its way, and where the tooth is so near the surface that it will be exposed by the retraction of the gum, then it may be advisable to cut down upon it with a lancet. Where no such appearances present themselves, and the child seems, nevertheless, to be very restless and uneasy, we can do little more than attend to the different symptoms. In the mildest form of dentition, mild sedation is very successful,—say thirty drops of the tincture of aconite in half a tumbler of water, and give teaspoonful doses every hour or two. If there be strong nervous symptoms, with a tendency to convulsions, add a few drops of the tincture of gelseminum.

Continued moving of the head indicates the existence of affection of the brain; distressing moaning, dilated pupils, spasms of the muscles, increasing to genuine convulsions, are alarming symptoms. The special remedies and indications are as follows:

*Irisin*, if the discharges are greenish; *pulsatilla*, *asclepin*, if there is cough, with oppression on the chest; *ipeacac*, if there is nausea or vomiting; *aconite* and *gelsemin*, if there is fever and restlessness; *belladonna*, if the face is flushed, eyes suffused, head hot; *lobelia*, if there are convulsions and grating teeth; *cannabis indica*, if the face flushes, and awakens with a scream; *hyosciamus* is best adapted for the nervous temperament, where the child starts and smiles during sleep; *nuxvomica*, if there is diarrhoea; and if there is congestion of the chest, gelsemin; cypripedin, if very nervous. Some preparation of lime is indicated.

If acidity prevails, it is to be obviated by the chalk mixture, or the neutralizing cordial, or a little lime-water, with a grain of euonymin, triturated in sugar; if the flatulency and griping pains attend, carminatives, such as an infusion of caraway seeds and epilobium, or a drop or two of either the oil of xanthoxylum or anise. If constipation prevail, the bowels must be opened by some mild laxative, such as a grain of juglandin and euonymin, or a grain of leptandrin, triturated with pulverized liquorice, or the neutralizing cordial, or castor oil; and if violent startings, with loud shrieks, and a disposition to convulsions, take place, two or three drops of the tincture of lobelia, in a little lavender-water, or the same amount of the tincture of belladonna or cypripedin must be resorted to. As an anodyne, one-sixteenth of a grain of hyosciamus, or the application of a strong counter-irritant between the shoulders, may also be advisable.

In recommending opiates to be administered to children when there is reason to apprehend they will be attacked with fits, in consequence of the great irritation occasioned by the teeth working through the gums, it might be observed that nurses and mothers are too prone to employ some preparation or other of opium in the nursing of children,

in order that their own rest may not be disturbed in the night. This practice seldom fails to prove injurious to infants.

When a considerable degree of fever attends dentition, aconite with asclepias should be resorted to; gentle diaphoretics, particularly with lobelia, in very small doses, together with diluting drinks, such as catnip, or sweet marjorum tea, and other remedies, according to indications. If we have retention of urine, an infusion of parsley root, with a few drops of the sweet spirits of nitre and tincture of belladonna; an onion poultice over the region of the bladder, should be resorted to.

A free action of the bowels during dentition, should not be hastily stopped, as this, and eruptions on the skin, when spontaneous, are the grand means of easy and safe dentition.

The cause of the diseases so frequently identified with dentition, is a lack of the proper histo-genetic material, thereby causing a drain upon the other tissues, which, together with the irritation of the teeth upon the nerves, produce a train of morbid symptoms, which are attributed to anything but their true source. Supply these materials, give lime and iron, of which the system is deficient, and continue until dentition is complete.

The practice adopted, of giving children ivory and other substances to suck during the period of teething, is highly improper, as they have a tendency to harden the gums. During dentition, children are sometimes troubled with ulcerated gums, but these may be readily cured by attention to the bowels, and applying the muriate of hydrastin to the part, or some astringent application; borax and honey may be used. Pure air, proper exercise, wholesome nutritious diet, regular bathing, active secretions, and everything that has a tendency to promote health and guard against irritation, will greatly contribute to the safety of dentition, as well as the child passing quickly through this hazardous period.

**CARIES.**—This common disease of the teeth, has received the name of caries; it begins immediately under the enamel, either on the grinding surface, or on the side.

*Causes.*—The predisposing causes are, hereditary predisposition, which has often existed in families for generations; the teeth are intimately connected with any diathesis, or sycotic poison; diseases of infancy are injurious to the young and tender texture of the teeth. Teeth generally decay in pairs. The various exciting causes are, hot and cold drinks, acids, medicines, &c. It may be presumed, that the acid matter which occasions the toothache, is produced by some vice, which originates in the tooth itself. In some instances, the caries appears first on the external surface, or enamel of the tooth, in one or more spots, which are superficial, but, in others, it commences in the internal surface, or bony part; the former is, however, far the more frequent. The caries, by spreading and corroding deeper, at length penetrates the substance of the tooth, and the external air and other matters getting into the cavity, stimulate the nerve, and thereby excite the toothache. The most effectual cure for this disease, is extraction of the carious tooth; but as this, in some cases, may not be

advisable, and in others might be strongly objected to by the patient, it will often be necessary to substitute palliative means. The textures of the teeth vary in different persons—their chemical compositions also vary.

*Treatment.*—Avoid all the remote and exciting causes; remove the dead portion from the living, and, if practicable, the cavity should be filled with gold, so as to exclude air and water. But if the decay has advanced too far towards the pulp cavity, and laid that open, it will be advantageous to use some remedy to destroy the nerve, and then fill the cavity with tannin, mastic and ether, or introduce a little acetate of morphia. The patient should avoid exposure to cold, to drinking hot or cold, sweet or acid fluids, and should exercise care in diet, in regulating the secretions. A peculiar fungous excrescence grows from the lining membrane, when exposed in caries. Sometimes it is indolent, sometimes acute, but it always gives rise to more or less annoyance in mastication. Nitric acid is the best remedy.

*TOOTHACHE.*—This is the natural result of decay or gangrene of the teeth. When they are decayed, so as to expose the inner membrane, it would seem strange if it did not produce pain in a sanguine or nervous temperament. The pain is generally the result of inflammation in the inner or outer membrane. When it is slight, some application may relieve it, but if it involves the outer as well as the inner membrane, the relief becomes more difficult, and extraction is the favorite resort. The early removal of the temporary teeth is bad practice. The effects of heat and cold are bad. Derangements of digestion always exert a deleterious influence on the teeth. Disease of the liver is always followed by speedy decay of the teeth. The use of acids, sour fruits, mineral acids, injuries, mercury, so that these should be avoided. Besides the skin, the liver, kidneys, should be daily stimulated by the appropriate stimulus. Then special treatment.

*Belladonna*, if the pains are of a neuralgic character, occurring on one side of the face,—drawing, tearing, shooting; sadness, tendency to shed tears; cutting pain in the face, ears, teeth—worse in the evening; congestion of the parts; burning redness of the eyes; glandular swelling. It might be alternated with chamomile.

*Staphysagria* is an excellent remedy in old toothache, where there are stumps, diseased gums. It might be alternated with *pulsatilla* or *hyosciamus*.

*Aconite* is one of our best remedies in toothache; indicated in febrile conditions, where the pain is severe and lancinating; shocks, congestion of the head, heat of face, redness of cheek if the patient is rheumatic. *Colchicum* and *rhus* should be alternated with the *aconite*; in scrofulous subjects, iodine, phosphorus, iodide potass; in syphilitic cases, nitric acid, gold, *irisin*; in rachitic patients, phosphorus and comp. syr. *stilligia*.

*Local remedies.*—Creosote or carbolic acid is indicated in pure toothache, from exposure of the internal membranes, without periostitis. Apply a bit of cotton, wet with creosote to the affected spot.

*Arsenic.*—The white arsenious acid, or the white oxide of arsenic, is



the best application. It has saved many a tooth from extraction. Sesqui-carbonate of potash, nitric acid, iodine, caustic ammonia, will all destroy the affected nerve, when the pain will cease. The treatment is empirical. Local remedies act by exciting a new action in the nerve of the decayed tooth. Relief is often permanent from a few drops of arnica, aconite, belladonna, oil of cloves, camphor, chloride of zinc, morphia, capsicum, valerian, galvanism, have each their respective admirers. Plugging the teeth is always advisable. This, in some cases, has preserved the teeth for a quarter of a century. Gold is the best agent, not being changed by food or medicine. In patients of the sanguine temperament, and hemorrhagic diathesis, hemorrhage from the gums is often frequent and severe.

First wash the mouth with cold water, or alum and water, hold it for a minute in the mouth; if this fails, try a saturated solution of tannin, or perchloride of iron, or Pond's extract of hamamelin. For pain after extraction, arnica, aconite and belladonna. Local anæsthesia should always be used before teeth are extracted. For the purpose of arresting the hemorrhage after extraction, Pond's extract of hamamelis, and carbolic acid in glycerine,\* are two of our best remedies; the former acting directly on the vessels, the latter producing coagulation of the fibrin.

TARTAR OR SALIVARY CALCULUS is an earthy matter, deposited on the teeth from the saliva. It is found most abundantly on the superior molars and incisors, because these teeth are the nearest to the orifices of the salivary ducts. Its quantity depends on the natural or constitutional state of the fluids of the mouth. In all cases, its influence on health, as well as on the teeth, is highly injurious. On its first formation it is soft, and may easily be removed by the brush, and a lotion of myrrh and borax; but if allowed to remain, it soon assumes a hardness, increasing in hardness on the necks of the teeth, the gums become irritated and inflamed, and the destructive process goes on until the teeth are destroyed.

*Treatment.*—The best treatment consists in washing the teeth with acidum aceticum verum, diluted with rose-water, twice daily. Afterwards, the local use of the powder of the areca nut, to prevent its formation. If the tartar has become hard, it must be removed by operation. To prevent its return, use daily, either myrrh and borax, or salt, or tincture cinchona in solution.

INFLAMMATORY ABSORPTION of the gums generally affects the middle aged, and may be a consequence of the accumulation of tartar, but more frequently it depends on a congested state of the liver and bowels. The gums are spongy, exceedingly tender, subject to constant aching pain, and bleed on the slightest touch. If this scorbutic condition of the gum proceeds, the alveoli become absorbed, the teeth loosen, and fall out. This termination is usually gradual, slow in its progress, the teeth dropping out, one by one, in the course of years.

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\* Carbolic acid has a peculiar property in coagulating albumen; and the application of it, in cases of compound fracture, has an excellent effect: Coagulation of the bruised tissues, solids and fluids; complete closure of the wound; the fracture promptly reduced to a simple one. Phenol sodique has analogous properties.



*Treatment.*—The stomach should be acted on three times a week, by an emetic of the comp. powder of lobelia; the liver should be briskly stimulated by leptandrin and euonymin, the skin by baths of nitro-muriatic acid. As tonics, nux vomica, hydrastin, and echina, stand pre-eminent. As an alterative, stillingia, frostwort and gold. As a gargle, solution of capsicum and myrrh; elhareol; nitro-muriatic acid; staphisagria; chlorate potass; phenol; thorough hygiene, good diet, abundance of fresh air.

**GUM BOIL.**—**ALVEOLAR ABSCESS.**—This name is erroneously applied to abscess of the alveoli, and cellular substance—almost invariably caused by the destruction of decayed teeth. It commences with inflammation of the periosteum, which becomes thickened, and, of course, raises the root from its socket, so that it becomes loose and feels too long. The inflammation extends to the surrounding parts, causing swelling of the face with severe pain, and soon progresses to suppuration.

*Treatment.*—Remove the cause, that is, the tooth, which will effect a cure. Use the same remedies as in tartar.

**EPULIS.**—This is a tumor formed by an hypertrophy of the gum, with any alteration in its structure. It begins between two teeth, which it gradually separates, loosens, and displaces; it may extend and involve the whole gum. Its removal or destruction is imperatively demanded, as it is apt to become the nucleus of malignant disease.

**CLOSURE OF THE JAW**, with inability to open the mouth or masticate food, may be the result of want of nervous energy, disease of the bone implicating the joint cicatrices in the mouth. If due to a lack of nervous energy, give the remedies recommended under that head; if too rigid, bands or cicatrices, divide them.

## DISEASES AND INJURIES OF THE NECK.

**ACUTE INFLAMMATION OF THE TONSIL.**—This is an inflammation of the tonsils specially; but the uvula, the soft palate, the pharynx, and, not unfrequently, the salivary glands, are implicated. The disease manifests itself by difficulty of swallowing, and a sense of heat and discomfort in the throat, often amounting to considerable pain. On examination, the throat at first exhibits unnatural redness, with enlargement of one or both tonsils. The uvula is enlarged and elongated; its end dropping down into the pharynx, and, by exciting the sensation of a foreign body, giving rise to much irritation, or else adhering to one of the tonsils. The tongue is usually furred, and the pulse rapid, and there are the ordinary symptoms of febrile disturbance. The inflammation terminates either in resolution or suppuration; in the former, if the attack is not severe, and yields to treatment; in the latter, if slight rigors are detected, with increased softness of the enlarged tonsil.

The matter which is discharged has a very fetid smell, and the fetor is often the first indication of the rupture. The pain almost entirely ceases with the discharge of matter, and the recovery is very rapid. The disease is usually at its height in about a week after the manifes-

tation of the first symptoms, and it almost invariably terminates favorably.

The ordinary exciting cause is exposure to cold, especially when the body is warm and is perspiring; and in persons of a scrofulous diathesis, the slightest degree of exposure is sure to induce it.

*Treatment.*—The disease may frequently be cut short, if, at its commencement, an emetic of the C. powder of lobelia be given, following this with an active cathartic of podophyllin and jalapin. It would also be judicious to confine the patient to the house, and keep him on bland diet. A stimulating liniment, composed of camphor, extract of phytolacin and glycerine, should be applied to the outside of the throat, and the patient should be warmly covered up. In mild cases, the above-described treatment I have found useful in aborting it. But in more severe or aggravated cases, the treatment will be somewhat varied. For the purpose of relaxing the parts, capsicum and vinegar might be applied, or ammonia, with oil of cloves, sassafras and hemlock, or a fomentation of equal parts of hops, mullein and lobelia, or an inhalation of bitter herbs, the warm foot-bath, or an application of mustard from the extremities to the knees. The body should be sponged, three or four times daily, with the alkaline wash; any undue excitement of the circulation, by aconite, gelsemin and asclepin, and some anodyne, sufficient to give the patient sleep. The vapor of vinegar might be inhaled from some suitable apparatus. A gargle of chlorate of potassa, or, where we desire more active remedies, capsicum, salt and vinegar. Should it be tardy in progressing to a termination, and well-marked symptoms of suppuration are present, as are known by the soft, pliable fluctuation of the tonsil, much suffering may be prevented, and any tendency to suppuration obviated by puncturing the parts. After evacuation, some stimulating and astringent gargle, composed of hydrastin, hamamelin, geranin, &c.

Relapses must be guarded against, by avoiding exposures to cold and damp, protecting the body with flannel, sponging the throat and chest with salt-water; by resorting to a bland, nutritious diet, and a judicious use of alteratives and tonics.

CHRONIC ENLARGEMENT OF THE TONSILS is a frequent sequel of repeated inflammation, especially in the strumous. It causes numerous inconveniences; deglutition is impeded; the voice is hoarse; respiration noisy and laborious during sleep; deafness from obstruction of the eustachian tube. The system must be strengthened, the secretions active; tonics and alteratives should be given. The iodide of iron, iodide potass, in the C. syr. stillingia, stimulating astringent washes, brushing on occasionally the sesqui-carbonate of potash, gargling with comp. tinct. myrrh and capsicum; the removal of all sources of irritation.

If unable to remove it by these remedies, *excision* of the enlarged *tonsils* is performed by means of the instrument described below. This consists of an angular or rounded blade, which can be drawn back, (*Figs. 73, 74,*) leaving a ring which is to be passed over the part to be removed, and pressed down around it so firmly as to make it protrude through as far as desirable. The cutting blade or

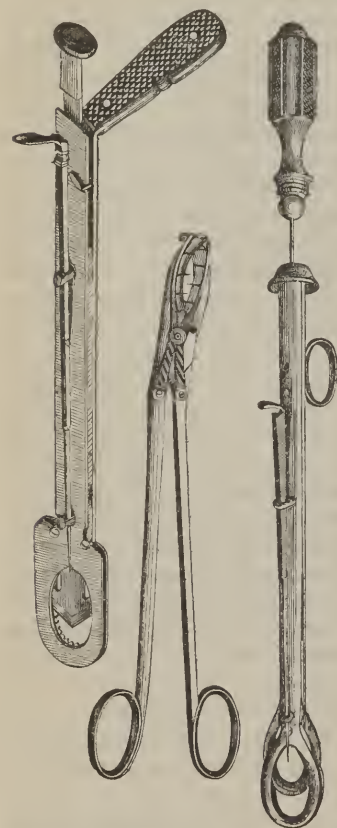
point is then pushed suddenly forward, a needle, which protrudes some sixth of an inch beyond the point, transfixing and holding the severed portion, to prevent its falling into the throat. This fixing needle is sometimes so arranged that it

can be first pushed through the tonsil by a spring, and raised before the blade is advanced. So far as its direct object is concerned, this plan is effectual. The method, with the instrument described, is sufficient, and devoid of danger. It is well, also with it, not to cut deep enough to wound any considerable arteries. The little hemorrhage that usually occurs, may be readily stopped by cold water and alum.

ENLARGEMENT OF THE UVULA produces tickling cough and expectoration, by irritating the larynx. If it does yield to the treatment for enlarged tonsil, it should be stretched and held with the forceps, and be cut through in the middle with a pair of long scissors.

DYSPHAGIA.—Difficulty of deglutition. There are different forms of the affection.

We meet with cases where the difficulty is due to mechanical injury. The tube is composed of intertwined fibres, plaited together in a manner that permits of considerable distention, but frequent distention is liable to give permanency to the dilatation. A prominent symptom is pain in the centre of the back and chest. The repeated swallowing of hard, badly masticated pieces of food, may cause, in a strumous patient, a thickening of the lining membrane of the œsophagus, which often ends in permanent



Figs. 73.

75.

74.

Figs. 73, 74, tonsilotomes for excising the tonsil gland.

Fig. 75, scissors for excising the uvula.

stricture and difficulty of swallowing. Spasm of the œsophagus is often the result of nervous irritation. We also meet with cases of spasmodic constriction of the pharynx, with inability to swallow. From this condition, food does not descend into the stomach, but is gradually and slowly carried downward by a sort of spiral action. This condition of things is a very frequent cause of apoplexy. Palsy of the œsophagus occasions inability of swallowing, but without pain; it usually depends on organic disease of the spinal cord.

PERMANENT STRICTURE of the œsophagus is a narrowing produced by inflammatory thickening of its various coats, which form a sort of ring encircling the canal. Most common in females, its seat is usually



at the termination of the pharynx, opposite the cricoid cartilage. The symptoms are, difficulty of swallowing, perceptible for years, gradually increasing, never absent, and occasionally aggravated by fits of spasm. The act of swallowing, frequently produces pain in the chest, shooting between the shoulders, and up to the head.

Ulceration of the œsophagus is generally situated at its upper part, and on its posterior surface. It occasions great difficulty of swallowing, pain on the passage of food. Malignant disease is sometimes found deposited in a stratified form, encircling the walls of the tube; it is generally of the scirrhus variety. It produces all the symptoms of stricture.

All these different affections must be treated according to the cause, by counter-irritation, alteratives, tonics; and, if the case admits of it, cautious dilatation by bougies. Tumors, pressing on the œsophagus, whether abscesses or bronchocele, bronchial lymphatic glands will produce symptoms analogous to stricture. Aneurism and abscess have often been bursted by the passage of bougies, with instant death to the patient.

FOREIGN BODIES.—In the act of talking and laughing at the same moment that something is swallowed, a portion of the food is drawn in with the breath, and starts into the glottis, and instantaneously presents dangerous symptoms, in some cases producing instant death.

The foreign bodies which find their way into the larynx, are frequently much larger than the size of the glottis would seem capable of passing; morsels of food, coins, grains of corn, nuts, &c., have found their way through this narrow aperture; how they get through has been regarded as a mystery. But dilatation and contraction of the space at the glottis, occur in regular alternation, during the respiratory acts; the first in inspiration, and the contraction during expiration. When dilated during inspiration, the size of the rima glottis, is nearly double what it is in a state of rest. Then in the act of inspiration, if the epiglottis fails to protect the laryngeal opening, a foreign body passing toward the œsophagus may be drawn in the larynx. After its entrance, the vocal cords contract forcibly from its irritation, and thus they prevent its being thrown out again; hence, an operation is necessary for its removal. If a foreign substance is in the trachea, the pain caused by its presence is towards the front of the throat, before the œsophagus; when in the throat, the pain is farther back; there is difficulty of breathing and swallowing in both cases; but when the wind-pipe is obstructed, the breathing is particularly difficult, the face bloated and purple, the eyes protrude; the voice is hoarse or altogether lost; the cough whistling and rattling, threatening to terminate in suffocation. The symptoms are slight at first, gradually increasing, sometimes almost entirely subsiding for a time; then returning with greater violence; obstruction to the passage of air often producing fatal asphyxia.

*Treatment.*—The first efforts to give relief in these cases, generally consists in beating with the open hand on the back; blowing snuff in the nose, to induce him to sneeze, or tickling the throat with a feather, to excite vomiting. But, if it be firmly fixed in the windpipe, it will



not be brought up by these efforts; or seat the patient in a chair with his head thrown back, mouth wide open, then introduce the fingers, regardless of any attempt to vomit, and search for it, and seize it if possible. If there is danger of suffocation, the patient must be relieved by the operation of tracheotomy. If at hand, give lobelia, when it is ascertained that a foreign body is in the windpipe; free use of alkaline drinks; after vomiting, belladonna, with which control the irritability of the nerves and disposition. By controlling the spasmodic effort, the patient is often quickly relieved.

**HANGING.**—This may destroy life in three different ways. *By dislocating the neck; by compressing the trachea, and suspending respiration; by compressing the jugular vein, and inducing apoplexy.* The most common mode of death is, by asphyxia from strangulation; indeed, the first effect of the tightening of the cord around the neck, is the suspension of respiration, and the engorgement of the brain, with blood, unless the drop has been such as will have dislocated the neck; whenever the engorgement of the brain with blood begins, sensibility decreases, epileptic convulsions, turgidity, suffusion and lividity of the face, shoulders, chest, arms and hands; the eyes are open, features distorted, tongue thrust out of the mouth, muscles of respiration firmly contracted, hands clenched, sphincters relaxed.

**Treatment.**—Artificial respiration, friction with tinct. capsicum to the surface. Stimulants of a powerful character to the spine; dashing cold water on the face and chest; a current of galvanism passed from the nape of the neck to the pit of the stomach, so as to excite the diaphragm. It must be understood, that all clothing must first be removed from the patient, and be placed in a proper position, with head and neck high; when respiration begins in the slightest degree, it will be observed by holding a mirror before the mouth and nose occasionally; the dampness of the breath will show on the glass. Enemas of turpentine are very useful; bottles of warm water should be placed at the feet, between the thighs.

**DROWNING.**—The body should be stripped and wiped dry, and friction or shampooing assiduously kept up with dry cloths, saturated with dry mustard. If respiration has ceased, begin it at once, artificially; hot bricks and hot bottles of water should be packed all around the patient, more especially in the axillæ and between the thighs; enemas of brandy and oil of xanthoxylon or turpentine should be given. The head should be well elevated; if respiration is not quickly restored, use galvanism; and, as soon as the patient can swallow, give him a little capsicum tea or brandy punch; follow this with an emetic of mustard—an emetic here acts like a charm; it cleanses the stomach of water; it rouses up and restores the circulation, by the impetus of vomiting. The reaction must be watched, and headache and febrile symptoms controlled by belladonna, aconite, veratrum, &c. The symptoms of a patient submerged in water are peculiar. After the effort to escape, we have a *calmness*, or anæsthesia, which depends on poisoning of the brain: the panting on respiration of carbonic acid; gasping upon poisoning of the spinal centre, the latter also being indicated by open mouth, starts, tottering gait, and paralytic weakness

of the posterior extremities. In all cases of asphyxia, whether from external injury, noxious gases, or narcotic poisons, artificial respiration is required. It is easily performed by passing a pipe through the mouth, or a small catheter through the nostril into the glottis, or by simply putting a pipe into one nostril, and closing the mouth and other nostril, and blowing through it. It is better, if it can be procured, to use a small pair of bellows, putting its muzzle into one nostril, and be careful to force the air into the lungs with very great gentleness, and press the larynx against the spine, so that it may not go down the œsophagus.

The following are the rules laid down by the best authority on the subject:

**DROWNING.—RULE 1.** *To maintain a free entrance of air into the windpipe.*—Cleanse the mouth and nostrils; open the mouth; draw forward patient's tongue, and keep it forward—an elastic band over the tongue and under the chin, will answer this purpose. Remove all tight clothing from about the neck and chest. Make sure that no foreign body is lodged in pharynx, larynx or œsophagus.

**RULE 2.** *To adjust the patient's position.*—Place the patient on his back, on a flat surface, inclined a little from the feet upwards; raise and support the head and shoulders on a small, firm cushion, or folded article of dress placed under the shoulder blades. *Supposing that natural respiration has ceased, proceed—*

**RULE 3.** *To imitate the movements of breathing.*—Grasp patient's arms, just above the elbows, and draw the arms gently and steadily upwards, until they meet above the head, (this is for the purpose of drawing air into the lungs,) and keep the arms in that position for two seconds; then turn down patient's arms, and press them gently and firmly, for two seconds, against the sides of the chest (this is with the object of pressing air out of the lungs. Pressure of the breast-bone will aid this.)

Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute, until a spontaneous effort to respire is perceived; immediately upon which cease to imitate the movements of breathing, and proceed to *induce circulation and warmth.*

Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate movements of breathing. Raise the body, in twenty seconds, in a sitting position, and dash cold water against chest and face, and pass ammonia under the nose. Patient should not be kept in warm-bath longer than five or six minutes.

**RULE 4.** *To excite inspiration.*—During employment of the above method, excite nostrils with snuff or smelling salts, or tickle throat with a feather. Rub chest and face briskly; dash cold and hot water alternately on them.

**RULE 5.** *To induce circulation and warmth.*—Wrap patient in dry blankets, and commence rubbing limbs upwards, firmly and energetically. Friction must be continued under blankets or over dry clothing. Promote warmth of body by application of hot flannels, bottles or bladders of hot water, heated bricks, &c., to pit of stomach, arm-pits, between thighs, and to soles of feet, or bathe with tincture

of capsicum. Warm clothing may generally be obtained from bystanders.

On restoration of life, when power of swallowing has returned, a teaspoonful of warm water, small quantities of wine, warm brandy and water, or capsicum, or coffee, should be given. Patient should be kept in bed; disposition to sleep encouraged. During reaction, large mustard plasters, to chest and below shoulders, will greatly relieve distressed breathing.

INTENSE COLD acts chiefly on the nervous system. There is giddiness, inability to see, weakness and rigidity of limbs, almost imperceptible respiration and pulse, tendency to profound sleep, and coma. Attempt restoration of circulation and sensibility by rubbing body with snow or ice, or cold water; friction with flannel, long-continued; very gradual application of warmth; a stimulating enema, unless warm milk, or coffee, or beef tea, or wine can be swallowed.

SYNCOPE.—Remedies for fainting are—recumbent position, with head low; cold air; cold water dashed over head and chest; friction or sinapisms over heart's region; small quantities of ammonia or brandy; galvanism, to rouse heart's action. In apparently hopeless cases of syncope from hemorrhage, a full dose of opium in brandy. Transfusion.

INTOXICATION, OR NARCOTIC POISONS.—*Treatment of.*—Patient to be placed on his side, with head slightly raised; cold effusion; heat to extremities; stimulating embrocations to chest; use of stomach pump, as emetics, and tickling of fauces, seldom act where insensibility is great; artificial respiration; galvanism; strong tea or coffee; solution of acetate of ammonia.

If the larynx has been crushed by a rope or violent blow, it may be necessary to perform tracheotomy, so as to impel a current of air into the trachea.

Wounds of the throat are generally made with an intention of suicide, and are dangerous, not less from the importance of the parts injured, than from the depressed mental condition of the patient.

*Treatment.*—The general indications are, to arrest hemorrhage, relieve the difficulty of breathing, to prevent inflammation, &c. Secure all the arteries; use pressure on the large veins. Put the patient in the horizontal position; elevate his shoulders and head by pillows, and, when all oozing has ceased, sew the wound up with lead-wire, and, if necessary, strips of gauze and collodion. The patient should be nourished with enema; the great thirst, dryness of the throat and fauces, are best relieved by allowing the patient to suck a wet sponge. Inflammation must be subdued by the usual means.

HERNIA BRONCHIALIS is a rare tumor, formed by a protrusion of the mucous membrane, through the cartilages of the larynx, or rings of the trachea. It is usually caused by violent exertions of the voice; the tumor is soft and elastic, can be made to disappear on pressure, increased by any exertion. Permanent support is the only treatment available.

PAROTID GLAND.—The parotid gland is occasionally the seat of malignant disease, but generally the tumors behind the ramus of the

jaw, commonly called parotid tumors, depend on disease of the lymphatic glands. These, by their increase, may cause the natural texture of the gland to be absorbed. The best treatment is constitutional treatment, vigorously persevered with, iodine, iodine of iron, potass, the sulphites, the vegetable alteratives, and the application of phytolacca and iodine to the tumor.

**WRY NECK.**—This is a peculiar distortion, in which the head is bent down towards one shoulder, and the face to the opposite. There are several varieties of this affection. It may be a part of general lateral curvature of the spine; it may depend upon caries of the cervical vertebra, or the cicatrix of a burn or ulcer, on nervous irritation or paralysis, on contraction of the sterno-mastoid muscle, from inflammation of the muscle or fascia. The inflammatory form is apt to come on suddenly in the weakly, from irritation of the stomach or bowels, or nerve centres.

*Treatment.*—An occasional emetic of the comp. powder of lobelia, the alcoholic vapor-bath, purgatives, alteratives, tonics, as nux vomica, cinchona, hydrastin, phosphorus, iron, capsicum, belladonna, cypripedin, scutellarin, fomentations over muscle, shampooing, electricity, friction, with stimulating liniments, hypodermic injections, the irritating plaster to the spine, and the use of mechanical support. If all our efforts at cure fail, division of the sternal origin of the muscle is the last resource.

## ASPHYXIA.

The apparent cessation of life in a new-born infant, may be due to various causes, such as inherent weakness of the vital powers, peculiar conformation, collections of glairy matter in the vesicles of the lungs, the introduction of a quantity of the amnii into the trachea, and a congestion of blood in the lungs, arising either from the neck of the child being tightly encircled by the os uteri, or vulva, or navel string, or from its being long detained in the passage, from pressure on the cord in breach presentations, or where the cord is prolapsed, and various other causes.

When universal weakness of the vital powers seems to be the cause, we must be cautious not to suffer any effusion of blood from the umbilical cord. The communication between the child and the mother should be kept up as long as possible; for which reason we should avoid any violent pulling at the cord, that the placenta may not be too soon detached; and we should also not be in a hurry to apply a ligature.

It not unfrequently happens, after a tedious labor, that the child is so weak and faint as to show little or no signs of life. In such cases, after cleansing it thoroughly, and wrapping it in flannel, we should stimulate it slightly by rubbing its chest and spine with diluted tincture of capsicum. If this fails to excite the languid circulation, we should resort to artificial respiration, by introducing a pipe or catheter into the mouth, and thereby endeavor to inflate the lungs; which plan, if tried, ought to be persevered with for a considerable length of



time, as we have every reason to suppose that many children might be saved, were such means actively adopted and thoroughly applied. Brisk friction in a warm room, blowing in the child's face, stimulating the intestinal muscles to contraction, by sprinkling alternately hot and cold water on the child's thorax, so that air may rush in by the glottis, may also be tried. Besides inflating the lungs, and pursuing the other steps that have been mentioned, care should be taken that the child does not lose its heat; for which reason it is advisable to put it into a bath of warm water, and while this is preparing, it may be enveloped in warmed flannel, or rubbed with tinct. capsicum and whiskey. If there is an electro-galvanic apparatus convenient, it should be immediately applied, by placing one pole on the pit of the stomach, the other on the spine; this remedy proves a very valuable auxiliary in many cases of asphyxia. As soon as the respiration is thoroughly established, I recommend a few drops of brandy, in simple syrup, as the best remedy, repeated as occasion demands. Where a portion of the liquor amnii gets into the trachea, and produces asphyxia, or the mouth of the infant is discovered to be filled with a glairy matter, rendering the respiration difficult, sonorous and rattling, we must not only wash out the throat of the child, but also place it in an attitude which will facilitate the discharge of the liquor. Having done this, we must endeavor to reanimate the infant by inflating the lungs, and then pressing out the air, imitating in this way, for a considerable time, natural respiration.

If congestion of blood in the lungs, from the causes before mentioned, has occasioned the suspension of life, the most proper step to be pursued, will be to suffer a small quantity of blood to be lost from the end of the divided cord, and the immersion of the limbs in a warm mustard-bath, friction to the surface, &c. The same treatment will be advisable after a tedious labor, where there is much stupor present, in order to lessen the determination of blood to the head.

Medical practitioners are often called upon to give evidence before a court of justice, in cases of supposed infanticide; it seems proper to mention that much careful observation is required to discriminate between a child that is still-born, and one that has lived only a short space of time after its birth. Various appearances, also, both internal and external, may be mistaken for marks of violence. Even the swimming of the lungs in water, a test on which much reliance is placed, is found, on many occasions, to be fallacious; for they will float in consequence of a putrefactive process having commenced, as well as when filled with air by respiration.

It may also happen that an unmarried woman, on arriving at the full period, and having concealed her condition, may be taken ill alone, and be delivered of a live child; but that either from syncope ensuing, or from her taking a convulsion, or being deprived of reason from a distracted state of mind, or owing to a sense of the shame attached to her condition, may be so overcome as to be rendered incapable of assisting the infant, whereby it may suffer suffocation under the bed-clothes. In other instances, it may happen, that, although the child is born alive, still, from some injury in the birth,

its universal weakness, or some other obscure cause, it may soon cease to breathe, without receiving any intentional injury from its mother. No doubt, occurrences of this nature do sometimes take place, and they clearly point out the impropriety of placing any reliance on the floating of the lungs in water, as a test of infanticide.

Justice, undoubtedly requires from every medical practitioner, that his evidence before a coroner or jury, should be regulated by truth; but, humanity and mercy dictate to them, that he ought to have the fullest assurances of guilt, before he gives an opinion that may deprive a fellow creature of liberty. He should always remember, that it is better that many guilty escape punishment, than that an innocent one suffer.

### TRACHEOTOMY.

In impending suffocation from any cause, it is often necessary to resort to this operation.

*Ordinary operation.*—Place the patient upon his back, with the head thrown sufficiently backward over a pillow, yet not so as to stretch it too much, compress the trachea, by contracting the muscles in front of it. Then, while standing on the right side of the patient, let one assistant steady the head, another, confine the arms and steady the shoulders, a third, attend to the lower limbs, and a fourth, hand sponges, as needed; or, if the patient is a child, bind its arms to the body, by inclosing them in a folded sheet or towel, so that one person may be able to hold it.

In commencing the operation, place the fingers of the left hand upon the skin, near the median line, so as to steady it, and make an incision from the inferior part of the larynx, down to near the top of the sternum, so as to cut only through the skin, or puncture a transverse fold of the skin, when raised by the assistants, and cut from within outward; then, raising the fascia superficialis on the forceps, puncture and slit it upon a director to the full extent of the external wound. After finding the line of junction of the sterno-thyroid muscles, separate them with the handle or back of the knife, by tearing the connective tissue between them, and have them held back by curved spatulae, so as to expose the parts beneath, when the isthmus of the thyroid gland, if found to come so low down as to be in the way of the incision, should be tied by means of two ligatures, passed beneath it by needles, after which it may be divided between the ligatures. At this time, the venous hemorrhage from several points of the wound will often demand attention, and such vessels as can be seen should therefore be ligated. Then, pushing aside the two inferior thyroid veins, divide freely the condensed areolar tissue, and dissect a small portion of it from around the contemplated opening of the trachea, in order to prevent the parts from subsequently becoming emphysematous and closing the orifice. The trachea being now freely exposed, and the bleeding checked, a tenaculum may be inserted in the median line of the rings, or a bistoury may be at once passed in, and the trachea slit open from below upward, to the extent of three or four rings, not higher, however, than the second; after which, the wound may be kept open by means of a dilator.

## PART V.

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### DISEASES OF THE CHEST, ABDOMEN, &c.

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#### QUINSY.

THIS is an inflammation of the tonsils specially; but the uvula, the soft palate, the pharynx, and, not unfrequently, the salivary glands, are implicated. The disease manifests itself by difficulty in swallowing, and a sense of heat and discomfort in the throat, often amounting to considerable pain. On examination, the throat at first exhibits unnatural redness, with enlargement of one or both tonsils. The uvula is enlarged and elongated; its end dropping down into the pharynx, and, by exciting the sensation of a foreign body, giving rise to much irritation, or else adhering to one of the tonsils. The tongue is usually furred, and the pulse rapid, and there are the ordinary symptoms of febrile disturbance. The inflammation either terminates in resolution or suppuration; in the former, if the attack is not severe, and yields to treatment; in the latter, if slight rigors are detected, with increased softness of the enlarged tonsil. The matter which is discharged, has a very fetid smell, and the fetor is often the first indication of the rupture. The pain almost entirely ceases with the discharge of matter, and the recovery is very rapid. The disease is usually at its height in about a week after the manifestations of the first symptoms, and it almost invariably terminates favorably. The ordinary exciting cause is exposure to cold, especially when the body is warm and is perspiring; and in persons of a scrofulous diathesis, the slightest degree of exposure is sure to induce it.

*Treatment.*—The disease may frequently be cut short, if, at its commencement, an emetic of the C. powder of lobelia be given, following this with an active cathartic of podophyllin and jalapin. It would also be judicious to confine the patient to the house, and keep him on bland diet. A stimulating liniment, composed of camphor, extract of phytolacin and glycerine, should be applied to the outside of the throat, and the patient should be warmly covered up. In mild cases, the above-described treatment I have found useful in aborting it. But, in more severe or aggravated cases, the treatment will be somewhat varied; for the purpose of relaxing the parts, capsicum and vinegar might be applied, or ammonia, with oil of sassafras, cloves and hemlock, or a fomentation of equal parts of hops, mullein and lobelia, or belladonna; or an inhalation of bitter herbs, the warm foot-bath, or the application of mustard from the extremities to the knee. The body should be

sponged three or four times daily with the alkaline wash; any undue excitement of the circulation, by aconite, gelsemin and asclepin, and some anodyne, sufficient to give the patient sleep. Special remedies are belladonna and bi-chromate of potash. The vapor of vinegar might be inhaled from some suitable apparatus. A gargle of chlorate of potassa, or, where we desire more active remedies, capsicum, salt and vinegar. Should it be tardy in progressing to a termination, and well-marked symptoms of suppuration be present, as known by the soft, pliable fluctuation of the tonsil, much suffering may be prevented, and any tendency to suffocation obviated, by puncturing the parts. After evacuation, some stimulating and astringent gargle, composed of hydrastin, hamamelin, geranin, &c. Relapses must be guarded against by avoiding exposures to cold and damp, protecting the body with flannel, sponging the throat and chest with salt-water, by resorting to a bland, nutritious diet, and a judicious use of alteratives and tonics.

### CORYZA.

This is a simple, subacute inflammation of the mucous membrane of the nares,—the result of cold. It usually begins with a stuffing in the head, with dull, heavy aching pain; a feeling of debility, and fever. In a day or two, there is a secretion from the nose; the secretions are arrested, there being usually a dry skin, constipation, scanty urine.

*Treatment.*—If the tongue is coated, give an emetic; restore the secretions, give podophyllin and colocynthin, and an alcoholic vapor-bath. The most efficient remedies, aside from these measures are, the warm pediluvium, and a full dose of the essential tinctures of gelseminum and asclepias, alternated with aconite and belladonna.

### CATARRH.

A catarrh consists in an increased excretion of mucus from the lining membrane of the nose, throat and bronchia, accompanied with a slight degree of fever, and sometimes great constitutional disturbance.

It attacks persons of all ages and constitutions, but more particularly children, and, by preference, those of a strumous habit; and it may take place at any time of the year, when there are sudden changes of the weather. In numerous instances, cold seems to be the remote cause of the disease; it sometimes prevails epidemically, under the term of influenza. The proximate or immediate cause, seems to be an increased secretion of the mucous membrane of the nose, fauces and bronchia, in consequence of some degree of inflammation in those parts.

Catarrh usually comes on with a dull, aching pain, or sense of weight in the forehead, redness of the eyes, a fullness and heat in the nostrils; which symptoms are soon followed by a discharge from these parts, together with a sense of soreness in the trachea, hoarseness, frequent sneezing, some difficulty of breathing, a dry cough, loss of appetite, general lassitude over the whole body, and chilliness. Towards evening, slight febrile disturbance.



In the progress of the affection, the cough is attended with an excretion of mucus, which, at first, is thin, and expectorated with difficulty; but becoming gradually thicker, of a yellow color, and is brought up with greater ease, and less coughing.

In cases where the affection would not seem to be severe, it often occurs that the evening paroxysm is greatly increased; and from restlessness and repeated coughing, the patient is prevented from sleeping till the morning, at which time a crisis takes place for the better, and the patient may remain tolerably well until the return of the evening paroxysm. When the inflammatory condition subsides, secretion of mucus ceases, so that a cure almost invariably arises in this disease.

Catarrh is seldom fatal, except when it arises in old persons, or attacks those of a strumous or tuberculous habit, or has been much aggravated by some fresh application of cold, or by improper treatment; and it usually terminates in a few days, if not neglected, either by an increased expectoration, open secretions, &c. In some cases, however, it lays the foundation of pulmonary consumption, or gives a tendency to asthma, bronchitis, hydrothorax. In other cases, it becomes habitual, and is accompanied with great difficulty of breathing, particularly in changeable weather, and is very apt to clog up the air-vesicles, and create other serious inconveniences. The inner membrane of the trachea usually appears, on dissection, in fatal cases of catarrh, to be much inflamed, its cavity filled with a considerable quantity of mucus fluid. The same morbid condition is also communicated to the bronchial tubes, which seem loaded with matter of a like character.

*Treatment.*—In mild attacks of catarrh, it may not be necessary to have recourse to any medical treatment. In general, it will be sufficient to confine the patient to bed, make him use a little nursing, let him drink plentifully of warm, diluent, mucilaginous liquid, acidulated with lemon juice; open the secretions, more especially the skin; but, in violent attacks, where there is great difficulty of breathing, much febrile disposition, a full, frequent pulse, it is proper to administer arterial sedatives, in proportion to the violence of the symptoms, age of the patient—aconite and asclepin. If the difficulty of breathing and oppression of the chest are not relieved, give gelsemin, and resort to counter-irritation; brush on the cantharidal collodion, then sprinkle on podophyllin or veratrin. To promote expectoration, to give the blood a determination to the surface, give small doses of the C. powder of lobelia, and assist its action with an infusion of capsicum. Lobelia, in catarrh, is a powerful diaphoretic; its action may be aided with the exhibition of a saline cathartic, and might be alternated with belladonna and aconite. The secretion of mucus in the lungs and fauces may be aided by the administration of senega, sanguinarin, eupatorium, perfoliatum, &c.; the inhalation of medicated vapor by an appropriate apparatus. When the cough is troublesome, and there is great soreness and rawness in the fauces, demulcents may be used with advantage; and, after the active inflammatory symptoms have abated, opiates will afford relief, and may with propriety be combined with other remedies. The hyosciamin, combined with the C. tinct. of serpentaria,

will give the patient rest at night. If constipation prevails, leptandrin and juglandin will meet the indication. If the mucous membrane of the nose is much affected, it might be smeared, from time to time, with glycerine and carbolic acid. The diet should be cooling; hygiene should be thorough. Such is the treatment resorted to in the first stage of this disease; but it often happens that, after the inflammatory symptoms have subsided, a weakness remains, and there is an increased secretion from the lungs, which, perhaps, continues for many months. In such cases, the patient should be careful to avoid all fresh exposures to cold; and he should be warmly and comfortably clad. If the disease has run on for any length of time, and has become chronic, much benefit will be derived by the use of the warm-bath, more particularly the vapor-bath, as by the latter we have the means of introducing within the chest soothing or stimulating vapors, which act on the seat of the disease. The irritating plaster over the region of the chest, keeping up constant irritation, tends much to relieve the difficulty, and, by a judicious use of absorbents and expectorants, to wit, lobelia and bromide of potassium, and remedies of that class, we not only mitigate the cough, but remove all consequences of the disease. When the secretion from the chest is greatly lessened, and debility remains, we should alternate the warm with the cold-bath; give tonics, such as iodide of iron, bark, phosphorus, hydrastin, &c.

## INFLUENZA.

This affection sometimes prevails as an epidemic, sometimes prevails idiopathically. It is generally preceded by chilliness, shiverings, succeeded by heat, pains in the head, a discharge from the eyes and nostrils, severe sneezing, cough. In a few hours the headache becomes intense, as well as the heat; the pulse quick and small; the breathing difficult and oppressed; darting pains in the chest. Some patients complain of pains in the shoulders and limbs. The tongue is white; the thirst is considerable; the bowels constipated; the urine highly colored, and very frequently there is nausea.

If no treatment is sought after, about the second or third night the cough becomes aggravated, almost incessant, with an expectoration of thin mucus. The fever becomes more severe, being attended with restlessness, pungent heat, great confusion in the head, and wanderings.

*Treatment.*—In the treatment of influenza or catarrh, the first thing is to equalize the circulation; diaphoretics are very useful—an alcoholic vapor-bath, the feet in hot mustard and water; if there are indications of a deranged stomach, a stimulating emetic. The C. tinct. serpentaria, in alternation with the eupatorium perfoliatum, are two of the best remedies we possess. In some cases, aconite, with asclepias and the ordinary lye-bath, are sometimes sufficient.

As soon as the disease has subsided, and to counteract the languor and debility, which is an invariable attendant during convalescence, have recourse to tonics, such as a decoction of hydrastis or cinchona, with the mineral acids, or the bitter tonics, as gentian, columbo, &c.

## PAROTITIS, OR MUMPS.

This disease chiefly affects children, is often epidemic, and manifestly contagious. It is distinguished by an external, movable swelling, that arises commonly on both sides of the neck, but in most instances it is confined to one. These tumors occupy the maxillary and parotid glands; are large, hard, and somewhat painful; and sometimes they attain to such a considerable size as greatly to impede the powers of respiration and deglutition. These swellings are usually preceded and accompanied with a hot, dry skin, coated tongue, scanty secretions, general pyrexia. The swelling or enlargement of the gland usually increases until the fourth day; but from that period it declines, and in a few days goes off entirely, and then the febrile symptoms also subside. On the disappearance of the swelling of the parotid, it not unfrequently happens that the disease is transferred from the glands of the neck to the breast, in the female, and to the testicle of the male; but this quickly disappears in a few days. In a few rare cases, where the inflammation has been excessive, suppuration has taken place in the cellular tissue, and occasioned great deformity, or, by bursting inwardly, and discharging its contents into the larynx, has suffocated the patient.

There is seldom much danger from this disease, except where we have symptoms of congestion of the brain, or its membranes.

The mumps do not require much treatment. If there is much fever in the active stage, it must be promptly controlled by the use of arterial sedatives. Aconite is specially indicated, in alternation with belladonna, sponging the surface three times daily with the alkaline wash, open the bowels with the neutralizing mixture and euonymin, and if a metastasis is threatened, apply a stimulating liniment of capsicum and vinegar, or the muriate of ammonia, in solution, over the glands. The case being mild, merely bathing the feet and taking some diaphoretic tea, as catnip, may be sufficient. The C. tinct. of serpentaria is a valuable agent, in sufficient doses, in treatment. A fomentation of stramonium is very valuable.

## CROUP.

Croup is an inflammatory affection of the mucous membrane of the trachea and larynx, which, in some instances, extends, however, even to the bronchia, and over the surface of the lungs, to which children are peculiarly subject, producing an exudation that appears partly in a membranous coating, and partly in a fluid resembling pus, and is attended with a peculiar wheezing, sonorous inspiration, compared by some to the crowing of a fowl; a similar or stridulous sound in coughing and speaking; great difficulty of breathing, thirst, and other febrile symptoms, as likewise by some degree of spasmodic affection.

Croup has been divided into numerous varieties; *idiopathic*, where the disease is primarily and extensively seated in the trachea, bronchia and surface of the lungs; *symptomatic*, where it appears as the consequence of some previous disorder, as measles, scarlatina, &c. Spas-

modic and inflammatory have been recognized, but not with propriety, as the disease is essentially inflammatory.

Croup is to be distinguished from acute asthma by the following characteristics: in *croup*, the cough is frequently ringing in our ears; in *asthma*, there is little or no cough; in *croup*, there is seldom any remission, whereas, in acute asthma, it is one of the most striking phenomena of the disease, and is attended with belching, vomiting, &c.; in *croup*, the pulse is strong, rapid, with great febrile disturbance; the urine is highly colored, and the voice shrill and small; in acute *asthma*, the pulse, although perhaps equally quick, is less full; the urine is limpid, and the voice is croaking and deep.

The inflammation of croup is peculiar, depending on a plasticity of the blood. It is not contagious, but sometimes prevails epidemically. It is peculiar to some families, and a child being once attacked with it, is very liable to its return from any slight exposure to cold. It would seem to prevail most frequently from a few weeks after birth to the eighth or tenth year of its age; the plethoric, or robust, are most obnoxious to its attacks; it has rarely been known to attack a person arrived at the age of puberty.

The application of cold is an exciting cause, and therefore it occurs most frequently in the winter and fall, at those periods when the weather is variable; consequently, we have it more prevalent near those locations where the air is loaded with moisture, and where the changes of the weather are sensibly experienced.

A day or two previous to an attack of the disease, the child appears drowsy, inactive and fretful; the eyes are somewhat suffused and heavy, and there is a cough which, from the first, has a peculiar shrill sound; this, in the course of two days, becomes more violent and troublesome, and likewise more shrill. Every fit of coughing agitates the patient very much; the face is flushed and swollen, the eyes are protuberant, and a general tremor takes place, and there is a kind of convulsive endeavor to renew respiration at the close of each fit. As the disease advances, great difficulty of breathing prevails, accompanied with swelling and inflammation in the tonsils, uvula, &c., and the head is thrown back in the agony of attempting to escape impending suffocation. There is not only an unusual sound produced by the cough, but respiration is performed with a hissing noise, as if the trachea was closed up by some spongy substance, and resembles the sound of a piston forced up a dry pump.

The cough is generally dry; but, if anything is expectorated, it has either a purulent appearance, or seems to consist of films resembling portions of membrane. Where great nausea and frequent retching prevails, coagulated matter of the same nature is brought up. With these symptoms there is much thirst, an uneasy sensation of heat over the whole body, great restlessness, and frequency of the pulse. Frequently the symptoms suffer considerable remissions and exacerbations. In the advanced stage of the disease, respiration becomes more stridulous, is performed with still greater difficulty, and some degree of spasmodic affection, being repeated at longer periods, and with greater exertions, until at last it ceases entirely.



*Prognosis.*—Croup must be considered as a very dangerous disease, and one which sometimes will destroy the child quickly by suffocation, and is induced either by spasm affecting the glottis, or by a quantity of matter blocking up the bronchia; but when it terminates in health, it is by a resolution of the inflammation, by a cessation of the spasms, by a relief to the dyspnoea, the voice becoming natural, with a copious and free expectoration of the plastic matter exuding from the trachea, or the membrane formed thereon. The unfavorable symptoms are, considerable difficulty in breathing, great anxiety, violent fever, no expectoration, the voice becoming more shrill.

Croup sometimes terminates rapidly, within twenty-four hours after its attack; but more usually, when it proves fatal, it runs to the fourth or fifth day; and, where portions of the false membrane, which is formed on the surface of the trachea, are thrown off, life is sometimes protracted for a day or two longer.

Post-mortem examinations of children, who have died of croup, exhibit a preternatural membrane of considerable tenacity, lining the whole internal surface of the trachea, which may always be easily separated from the proper membrane, and which, in many instances, extends well downwards. There is also found a great deal of mucus, with a mixture of pus, in the trachea and its ramifications.

*Treatment.*—From these appearances and symptoms, there can be little doubt, but that it is an inflammatory affection of the mucous membrane of the trachea, larynx, and other parts immediately connected therewith, attended by a spasmodic contraction of the muscles in consequence thereof; the treatment ought to be managed accordingly. In the incipient stage, our efforts should be directed to lessen the increased action of the heart and arteries, thereby controlling the increased action which prevails all over the mucous membrane of the throat, and therefore arterial sedatives, such as aconite, veratrum, digitalis, lobelia, with counter-irritation, and warm-baths should be promptly resorted to. As quickly as possible reduce the pulse to seventy, and thereby prevent exudation. This point should never be neglected, and it should be accomplished with promptness and decision, with aconite, veratrum, lobelia, and the warm or vapor-bath.

Having commenced this treatment, an emetic of the C. tinct. lobelia, or the C. acetated tinct. of blood-root, should be given in doses sufficient to get a thorough action, to produce sufficient vomiting, by which a considerable quantity of ropy mucus will be brought off, to the great relief of the little sufferer; and so powerful is the effect of this remedy, that it sometimes removes the disease without having recourse to any other means. Besides unloading the chest, this remedy will also produce a diaphoretic effect. If the first emetic does not relieve the cough and difficulty of breathing, it ought to be repeated. As soon as possible, after the operation of the emetic, the throat, neck, and chest, should be bathed with a liniment, composed of the oil of lobelia and stillingia, in alcohol, or a hot fomentation of stramonium and lobelia, or capsicum and vinegar; the sooner some of these are laid on after the invasion of the disease, the greater will be the chance of its proving serviceable.

Special remedies, then, will consist in *belladonna*, *aconite*, *lobelia*, *blood-root*, *iodine*, *spongia*, *drosera*, *bi-chromate of potash*, *phosphorus*, *bromine*.

Throughout the whole course of the disease, active medication is demanded; active secretions, leptandrin and irisin are obviously proper, and their activity hastened, by adding jalapin, and administering enemas. To assist expectoration, and promote a determination to the surface of the body, small doses of the wine of lobelia may be given, in such doses as to excite nausea. To increase the effect of this remedy, the warm-bath of ninety-five or one hundred degrees, Fahrenheit, or vapor-bath may be used, the feet and legs might occasionally be immersed in mustard and water, the alkaline sponging might be resorted to, and a bandage, saturated with mustard and flour, two parts of the former to one of the latter, made of the consistency of cream, and kept applied from the extremities to the knee.

In the progress of the disease, there is always a lodgment of lymph, or mucus in the trachea, and it is therefore advisable to excite vomiting, once or twice daily, in order that the effused fluid, or false membrane, may be brought off. Much benefit will be derived from inhaling the vapor arising from water or vinegar, in which hops have been boiled; and the benefit is no doubt owing to the fact, that the vapor exerts a softening influence on the false membrane, which is soluble in vinegar, being changed into a different mass, thereby lessening the violence of the spasms, and assisting expectoration. If the case is very obstinate, and there are morbid accumulations in the bowels, active purgation may be necessary; the good effect of this depends on its operating quickly and powerfully on the circulating fluids, thereby arresting the rapidity of the inflammatory symptoms.

During the day, when there is a remission of symptoms, the C. tinct. of lobelia, or blood-root, should be given in small expectorant doses, alternated with small doses of a combination of quinine, belladonna and gelsemin, and, as soon as the patient is over the critical point, the pyrophosphate of iron should be given perseveringly, until the plasticity of the blood is overcome. After having subdued the inflammatory symptoms, a slight form of spasmodic croup may remain, which is usually relieved by small doses of belladonna, or musk, or extract of Indian hemp, or, what is very excellent, is small doses of gelsemin and chlorate of potash. This has a salutary effect. If, at any time, there is great difficulty of breathing, with a whizzing, rattling sound, the emetic should be frequently repeated, and the room in which the patient is placed, should be kept warm, that the mucous membrane of the throat should not be irritated by respiring cold air; it should be warm and moist. The treatment of croup is somewhat limited. We believe that no remedies in the *materia medica* are so valuable as the acetous tinctures of lobelia and sanguinaria, controlling the circulation effectually with the arterial sedatives. With these remedies, and proper auxiliary treatment, a recovery is almost, in all cases, certain; even where an extravasation of coagulable lymph within the trachea and bronchial tubes has taken place.

## PUTRID SORE THROAT.

This is to be distinguished from the inflammatory, by the soreness and white specks or aphtha covering ulcers which appear in the fauces, together with great debility of the system; a small, fluttering pulse, and, it may be, an erythematous condition of the skin; whereas, in the inflammatory, there is always great difficulty of breathing, a considerable degree of swelling, with a tendency in the parts affected to suppurate, and a hard, full pulse. In the one, the inflammation is seated principally in the mucous membrane of the mouth and throat, and the type is asthenic or typhoid; whereas, in the other, it chiefly occupies the glandular parts, and the fever is of the inflammatory type.

The putrid sore throat often arises from a peculiar or humid state of the atmosphere, prevailing as an epidemic, attacking chiefly the weak, or the debilitated, and children; common in the spring and fall. It is produced by contagion; it would seem to run in families; in infants it is often fatal. In some instances, the symptoms of scarlatina and diphtheria are so blended together, that it is difficult to say of which disease they partake most; in a practical point of view, this is of little importance, as the treatment is the same. Some authorities consider scarlatina, diphtheria and cynanche, as essentially distinct; but my experience induces me to believe that they are merely modifications of the same disease, for I have frequently noticed it under all its different forms in the same epidemic, and even in the same family, from the same contagion.

*Symptoms.*—Putrid sore throat is usually ushered in with cold shiverings, anxiety, nausea, vomiting, succeeded by heat, restlessness, thirst, debility, and oppression at the chest; the face is flushed, the eyes suffused; stiffness in the neck; hurried respiration; hoarseness of voice, and soreness in the throat; and, upon examining the internal fauces, there appears a fiery redness in every part. The inflammation, after a while, takes on a peculiar termination; for, upon further inspection of the throat, a number of sloughs, of a shade between a light ash-color and a dark-brown, are observed to be on the throat and its appendages; the breath is intensely offensive; the tongue is heavily coated with a brown fur; the inside of the lips is covered with vesicles; sordes are on the teeth, acid matter comes from the mouth, which occasions excoriations; with these symptoms, there is also a coryza, which pours out a thin acrid matter, excoriating the nostrils. A diarrhœa often occurs, especially in infants, and a thin acrid matter flows from the anus, excoriating this and the adjacent parts.

From the first attack there is fever, with a small, frequent, irregular pulse, an exacerbation every evening, remission towards morning, with great loss of strength and debility. In some cases, the brain is affected, and we have low muttering delirium, coma, &c. About the third day, large patches, of a dark, red color, make their appearance about the face and neck, which, by degrees, become dispersed over the body, even to the extremities of the fingers, which feel stiff and swollen. The inflammation, as in the simple form, sometimes spreads



along the eustachian tube to the inner ear, occasioning ulceration, wholly destroying its structure, and causing incurable deafness. In other cases, it extends to the parotid, maxillary, and other glands of the mouth and throat, which become painful and swollen; indeed, the whole neck sometimes swells, and assumes a dark red color. As the sloughs spread, they generally become of a dark purple color, the interstices being even darker; new specks arise, and the whole internal fauces are at length covered with thick sloughs, which, when they fall off, reveal ulcers deeply seated. In severe cases, where no medication has been resorted to, or even worse, where that accursed drug, mercury, has been administered, we may have the fauces becoming black, the sloughs corroding deeper and deeper, spreading rapidly, and assuming a gangrenous form, symptoms of irritation supervening, together with a diarrhœa and other indications of decline.

*Prognosis.*—If there is a great increase of the evening paroxysm of fever, with debility, great depression and irregularity of the pulse, early delirium, coma, vomiting, diarrhœa, or subsultus tendinum, and these are accompanied with great swelling of the throat, dark-colored, spreading ulcers, with great fetor of the breath, the prognosis is unfavorable; but where the pulse becomes more moderate and stronger, the respiration free, the skin soft and moist, the florid color returning to the fauces, the discharge less acrimonious, our prognosis is more favorable. In slight attacks, where the fever is of a less putrid nature, the symptoms more moderate, we need not apprehend danger.

Malignant sore throat generally arrives at its height about the fifth or sixth day, and in favorable cases declines in five or six days; as a general rule, it runs its course more slowly in adults than in children. The mildness or absence of sore throat in scarlatina, always denotes a favorable prognosis, and the presence of an eruption, in the shape of blotches or small points, scattered over the extremities and trunk, of a red, florid or a dark-purplish hue, affords an unfavorable prognosis.

*Pathology.*—From dissections, it would appear that the fauces are inflamed, suppurated and gangrenous, and that the trachea and larynx are likewise in a state of inflammation, and lined with a viscid, fetid matter. In numerous instances, the inflammatory affection extends to the lungs themselves. Enormous enlargement of the lymphatic glands about the neck, occasioned by an absorption of the acrid matter poured out in the fauces, are now and then to be found. We have a state of things post-mortem, analogous to what we have in typhus fever.

*Treatment.*—As this affection differs essentially from the simple form, its treatment is altogether different. We must abstain from all depleting measures, as they invariably prove injurious by increasing the irritability and debility, which is usually extremely great. The greatest precaution should be used with respect to the employment of active purgation. The regular expulsion of the fæces must be promoted by mild enemas, and even these should only be had recourse to if nature is insufficient. Active purgation is never admissible; and even where a mild aperient is demanded, one composed of juglandin and leptandrin is the best.



At the commencement of all cases, an emetic of the C. tincture of lobelia is indicated, and even its repetition is very advantageous. It never fails to bring away a considerable quantity of acrid matter, which, by getting into the bowels, might induce diarrhœa—a complication to be avoided by every possible means, as always adding to debility and endangering the life of the patient. In the early stages an emetic will sometimes cut it short, and even if it does not, will break or mitigate its severity. At an advanced period of the disease it is often advantageous.

The grand object to be kept in view, in this malignant disease, is to check or counteract its septic tendency; to wash off, from time to time, the acrid matter from the fauces, and to overcome debility. For this purpose capsicum is valuable; an infusion of two tablespoonsful, with a teaspoonful of salt, a little vinegar, added to a half pint of boiling water. After infusing for two hours, strain through a cloth, and give two tablespoonsful every half hour. The speedy and good effect produced by the use of this, in every case, points out its utility. To assist the effect of the above, it will be highly advisable to give bark, sulphate of chinonine, in large doses, and chlorate of potassa. Packing the throat with cold water, where the case is very active, or painting with equal parts of tincture of iodine and belladonna, is very beneficial. In children, salicin and baptisin is an excellent formula, &c. The mineral acids, more especially nitro-muriatic acid, with bark or hydrastis, are to be recommended.

To check the putrid tendency in the parts, as well as to remove the acrid matter which is secreted, it is necessary to wash out the fauces with some gargle, as muriate of hydrastis and honey, or a solution of permanganate of potash. After gargling, I have found it good practice to inhale the vapor of pyroligneous acid, or permanganate of potash, or some antiseptic agent, by means of an inhaler, which can be placed in any position for the purpose.

There can be no doubt that the greater fatality among children, in this disease, is to be attributed solely to their swallowing the morbid secretion from the throat. This, no doubt, causes vomiting, griping pains, purging, of the worst description, causing the disease to spread along the alimentary canal. This is sometimes prevented by swabbing the throat with the remedies best calculated to promote their healing.

The circulation must be equalized, the skin must be stimulated, alkaline sponging, with aconite and pulsatilla, are the remedies.

Should a diarrhœa arise in the progress of the disease, immediate recourse must be had to opium, gelsemin and myricin, or the fluid extract crane's-bill and gelsemin, and stimulants should be given. The local application of capsicum and vinegar to the throat is excellent. The internal use of capsicum and belladonna is excellent. If we have suppression of urine, the necessity of pushing, as far as possible, the invigorating plan of treatment is strongly indicated. Emollient fomentations over the bladder are the most advisable means of removing this affection; but, if the suppression continues obstinate, the introduction of the catheter may be necessary.

In the latter stages of this complaint, hemorrhage from the nose,

mouth and ears may occur, and it should be arrested by the perchloride of iron, in solution, locally and internally.

Through the whole course of the disease, the patient must be supported by beef essence, liquid nourishment, arrow-root, rice, milk punch. Of course, the quantity of the latter must be in proportion to the age, the violence of the febrile symptoms, the tendency to putrescency. The apartment should be well ventilated and of a proper temperature; bromine or chlorine should be exposed in the chamber. The greatest degree of cleanliness is essential.

### LARYNGITIS.

Laryngitis is not, generally speaking, a common disease, although it is very frequently met with among public speakers, or children who have to use their voice freely. It is almost, however, peculiar to adults. Cold, wet, sudden exertions of the voice, are exciting causes. The symptoms are usually plain: fever, harsh cough, pain in the throat, difficulty of breathing and of swallowing, great anxiety, hoarseness, or even complete loss of voice, and frequent spasmodic exacerbation of these symptoms, causing the most distressing paroxysms of threatened suffocation. The inspirations are long, and attended with a peculiar wheezing sound, as if the air was drawn through a reed. The face is flushed, the eyes protruded, the lips swollen, the pulse hard, and, unless relief be afforded promptly, the disease gets worse and worse. The larynx and trachea move with great rapidity, upwards and downwards, and all the muscles of respiration are brought into action, so that the chest heaves violently, and, unless relief be prompt, danger is very imminent. If remedies fail to give relief, tracheotomy should be resorted to.

Œdema of the glottis may arise from other causes besides inflammation, and produce the same effects as laryngitis. It is often due to boiling water, the strong mineral acids, or alkalies taken into the mouth. The poison of erysipelas may give rise to it. The larynx may suffer from chronic disease. Chronic inflammation is not uncommon in consumption. The membrane lining the laryngeal cartilages often becomes thickened and ulcerated in secondary syphilis. Polypi and watery growths may also arise from different parts of this tube, and cause great impediment to the entrance and exit of air.

*Treatment.*—The treatment of laryngitis is very simple. We must have thorough secretion and excretion by the usual means, never omitting the alcoholic vapor-bath daily, and hydragogue cathartic. For special treatment, the C. powder of lobelia, given so as to keep up continuous nausea; general relaxation is desirable, and if this does not afford relief, give it sufficiently often to produce emesis. For the purpose of reducing the inflammation, and keeping up relaxation of the larynx, we should apply, externally, cloths, frequently changed, saturated with the oils of lobelia, stillingia, and capsicum, diluted with alcohol.

Counter-irritation is of great utility; dry cups to the throat, spine, and the back; loins, hips, and the extremities thoroughly rubbed with oil of capsicum diluted with alcohol. Inhalation is of the utmost

importance. Keep on a table, opposite the patient's mouth, an inhaler, and let him inhale the vapor of vinegar, or the vapor of water medicated with belladonna, aconite, sanguinarin, myrricin, lobelia, &c.

In some cases, the disease is apt to assume a chronic form; when this is the case the treatment must be varied—our remedies must be directed to a restoration of the general health, as well as the local disease. Still, special attention should be paid to the excretions; the skin stimulated by the use of appropriate baths; the kidneys by some alkaline diuretic, and the bowels by laxatives. Cinchona, with iron, the hypophosphates; and, for the relief of troublesome cough, the bronchitis drops, or Indian hemp and hyosciamus.

Local medication is of much advantage; most any soluble remedy can be thus used by inhalation, and let the patient breathe it direct. If there is a great deal of irritation and dryness, water can be made the vehicle, and lobelia, narcotics and sedatives, to relieve the cough, should be the agents for inhalation. For example, such a mode as follows can be adopted with great advantage: if we have little irritation, the vapor of water may be used, or vinegar, or alcohol diluted; if we want a tonic, a decoction of cinchona, hydrastis, tincture humulus, populus, gold thread; if an astringent is demanded, tannic acid, persulphate of iron; as stimulants, sanguinarin, podophyllin, xanthoxylin, myrrh, balsam of Peru, creosote, iodine, and so on with other remedies. Counter-irritation must be active to the sides of the pharynx, back of the neck. A course of alteratives and tonics is attended with good results. Perfect rest is of the greatest importance, and it is here that we have the greatest difficulty to contend with in treatment. Speaking and singing should be entirely prohibited, and the larynx used as little in conversation as possible. Food of a bland and nourishing character; milk punch, beef essence, and everything calculated to prevent depression.

The use of the nitrate of silver cannot be too emphatically condemned. There is more destruction, more confirmed cases of permanent ulceration, and confirmed, incurable sore throat, and permanent deafness result from the use of this agent, as a medicine, than from the use of any other remedy. The treatment of inflammatory sore throat is nearly identical with the above.

## PHARYNGITIS.

In this disease, the patient complains of a frequent sense of stuffing in the back and upper part of the throat, which gives rise to a hawking and spitting of a considerable amount of mucus. Occasionally there is manifested a tendency to cough; which, if the disease lasts long enough, may extend to the larynx. On examination, we perceive the mucous membrane thickened, or relaxed and flabby, with the mucous follicles enlarged, and the color changed from a smooth pink to a dusky red or bluish appearance.

*Treatment.*—We treat this affection by attending to the secretions, the liver, intestines, kidneys and skin; then following with gargles of muriate of hydrastin and tincture of myrrh, or tincture of capsicum,

rhusin, tannic acid and hamamelin, or a decoction of oak-bark. If a stimulant, the sesqui-carbonate of potash, in solution, is the best, applied by means of a probang.

## CHRONIC LARYNGITIS.

Dysphonia clericorum, or clergyman's sore throat, is often a nervous complaint, being unattended, at least in its early stages, by any organic lesion, but consisting rather of irritation of the membrane of the fauces. Afterwards, a series of morbid changes take place. These are, chiefly, congestion, inflammation, or relaxation of the mucous membrane, enlargement of the tonsils, elongation of the uvula, and irritation, inflammation, morbid deposit, ulceration of the mucous follicles.

It is, when advanced, really a diseased condition of the glandular follicles of the mucous membrane of the throat and windpipe, commencing in the mucous follicles of the isthmus of the fauces and upper portion of the pharyngeal membrane, and extending, by continuity, until the epiglottis, larynx and trachea are extensively involved in the morbid action.

*Causes.*—Numerous causes have been assigned for the increasing prevalence of this disease. Clergymen who read their sermons, are more subject to it than lawyers and political orators, for the reason that reading is a purely mechanical operation, whereas, extempore speaking is both mental as well as mechanical. It is, therefore, this mental, this vital, nervous influence, which protects the lawyer, while the lack of it punishes the preacher. The extempore speaker gives his mind to his argument, and thus lends the muscles of speech extra and recuperative energy; while the reading or monotonous preacher, from a colder and calmer sense of duty, allows his organs to flag and fail. It is common among certain preachers, from the violent exertion, monotonous strain of discourse pursued by them. Chronic laryngitis is the result; for it is only when under a strong, earnest, intelligible desire to speak, from whatever exciting cause, that the vocal chords can be kept faithful to their functions. In mere mechanical reading and sing-song discourse, there is an absence of that vital energy which affords the power to resist the wear and tear of the organs of articulation. The vocal chords were made for expressing our thoughts; they were not merely designed for reading, but also for enunciating; the brain supplies the necessary amount of nervous energy to protect the vocal chords from injury, to keep them in a vigorous condition. The lawyer or political orator, speaks from the spirit of the moment; the brain co-operates with the vocal chords, in giving expression to his thoughts, and thus saves them from irritation and disease.

*Symptoms.*—An uneasy sensation in the upper part of the throat, with continual inclination to swallow, as if there was something to be removed by swallowing. The patient also makes frequent attempts to clear the throat of phlegm, by coughing, hawking or spitting, and he points out the larynx as the seat of all his pain. At the same time, the voice undergoes an alteration; loss of power, hoarseness, complete loss of voice, sibilant cough; expectoration of a thin, but viscid mucus,



occasionally pus; painful deglutition, owing to inflammation of the epiglottis; emaciation; and, as the disease progresses, it has all the symptoms of phthisis pulmonalis. If we examine the throat and fauces, we find these parts presenting an unhealthy, slightly raw, and granular appearance. Mucous follicles are sometimes visible, and filled with a viscid, muco-purulent secretion, which adheres to the palate.

This affection of the throat may exist alone, or it may be complicated with bronchitis or phthisis. Clergymen, actors, singers, are most liable to it.

*Pathology.*—Edema glottis, inflammation of the mucous surfaces, ulceration, ossification, caries, necrosis of the cartilages.

*Treatment.*—This has been divided into topical and internal. The topical application of nitrate of silver has been the chief dependence of physicians. It may be that this powerful agent will modify the condition of the mucous membranes,—but we have better resources. The application of iodine has also been much relied on; but by means of the atomizer, or a modification of Richardson's spray, we can apply any remedy we please to the part. In the use of these instruments, various medicated sprays or vapors can be used; the most valuable of which are carbolic acid, sanguinaria, iodine, Pond's ext. hamamelis, quinine, mineral acids, &c.

The constitutional treatment should be tonic and alterative.

In the early stage, when merely a nervous affection, the treatment should consist of the use of such remedies as iron, quinine, nuxvomica, hydrastin, cod-liver oil, brandy and cream, cold shower-baths, sea-bathing, change of scene and occupation.

If the case has progressed, then iodide potass, iodide iron, quinine, hydrocyanic acid, cinchona, mineral acids, &c., will prove of value.

In bad cases, I have derived excellent results from nitro-muriatic acid, phosphoric acid, and C. syr. stillingia, with iodide potass.

If the tonsils remain enlarged, indurated stimulating gargles, and inhalations; the preparations of iodine have been successfully employed.

## LARYNGISMUS STRIDULUS.

Laryngismus stridulus, infantile laryngismus, or child-crowing, is a spasmodic disease, occurring in infants, chiefly during the period of dentition, consisting of a temporary, partial or complete closure of the rima glottidis, by which the entrance of air into the lungs is impeded or arrested.

*Symptoms.*—It is unattended with fever; almost the only symptom being the interruption of the breathing. The child is suddenly seized with dyspnœa, and after vehement struggles, at length succeeds in drawing in its breath, with a shrill sound, like a peculiar inspiration of croup. These attacks are paroxysmal, and vary in frequency, severity and duration. The intervals become shorter as the disease advances. In the earlier stages, the attacks begin generally in the night, but afterwards come on from any trifling cause.

*Pathology.*—The explanation of the phenomena of this disease has

been ably performed by Dr. Marshall Hall, who has shown it to be caused by reflex spasm, to some excitation of the true spinal or excitomotor system. This disease originates in the irritation of the—

1. *Trifacial*, in teething.
2. *Pneumogastric*, in over or improperly-fed children.
3. *Spinal nerves*, in worms, constipation, &c.

These nerves act through the *spinal marrow*—through the *inferior* or *recurrent laryngeal*, the constriction of the larynx—the *intercostal* and *diaphragmatic*—the motors of respiration.

*Predisposing causes*.—Inherent weakness of the nervous system lies at the foundation of this disease.

The breathlessness which precedes the sonorous inspiration cannot arise from the closing of the rima glottidis, which, in such cases, is perfectly normal, but must depend on defective power in those agents, whose office is to open the aperture. The crowing inspiration is nature's imperfect cure of the temporary suspension of breathing, arises from the glottis being partially open for the admission of air, and remaining so until some expulsive expiration, as screaming or crying, coughing, or belching, shall mechanically burst open the flood gates.

Children of a strumous habit are most liable to this affection.

*Treatment*.—If called to a patient affected with this malady, our best plan is to give remedies to overcome the diathesis, on which it depends. This should be attempted by remedies recommended for scrofula.

If called in during the paroxysm, the same mode of treatment should be resorted to as laid down in asphyxia, hot water to the lower portion of the body; cold affusion to the head and face; slapping the chest and nates; exposure to a current of cold air, and artificial respiration, if necessary. The vapor of ether or ammonia to the nostrils, and, if all fail, tracheotomy.

If called in when remedies can be swallowed, we can meet the indications promptly with some of the following: *Aconite*, *belladonna*, *lobelia*, *coffee*, *nux vomica*, *carb. ammonia*, *cannabis indica*.

A saturated solution of chlorine gas, given in half-teaspoonful doses every two hours, has proved of great value. The subsequent remedies will consist in regulating the secretions, giving tonics, and, above all, a change of air.

The most rigid attention to daily bathing, a digestible diet, and everything tending to promote the health of the patient.

## APHONIA—LOSS OF VOICE.

Dumbness, or loss of voice, may arise from various causes. The various species described by authors, are:

APHONIA, from absence of the tongue; from disease of the fauces; trachea; from paralysis; loss of nervous power.

*Treatment*.—If it depends upon disease, on the removal of the cause, it will very probably subside.

In every case that comes under our care, it is well to look out for chronic laryngitis, syphilitic ulceration, tuberculosis, aneurism. If

the laryngeal nerve is irritated or compressed, we have weakness, paralysis, which are manifest in an altered voice, in partial or complete aphonia.

Nervous aphonia is not necessarily attended with cough, pain, or expectoration.

If it is dependent on a rheumatic, gastric, uterine, or deficiency of power in the solar plexus of nerves, these points should be looked to and rectified.

Electricity is one of our best remedies, persevering and thoroughly applied; cases are benefited by this that resist all treatment.

All such cases require the use of nerve tonics, as belladonna, nux, phosphorus, iron, quinine, cyripedin.

Cases are benefited by the inhalation of vapors; perhaps of these, the best is ammoniacal vapor, disengaged from a mixture of a solution of the hydrochlorate of ammonia and carbonate of potash. The vapor of iodine; bromine may also be used with success.

HOARSENESS.—This, by itself, usually depends upon a peculiar condition of the membrane, which lines the larynx or trachea. It may be acute or chronic.

*Causes.*—A congestion of the throat. Relaxation or partial destruction of the tissues of the larynx.

*Symptoms.*—Rough, indistinct voice, dry, hard cough, and symptoms of catarrh.

*Treatment.*—Aconite and asclepin, if there is fever; *arnica* or *capsicum*, diluted with water, and used as a gargle, when it depends on a relaxed condition of the lining membrane of the pharynx, tonsils, or adjacent parts.

If it does not yield, try nux and phosphorus, alternate with nitro-muriatic acid, macrotin, &c.

The shower-bath, friction to the spine, and other remedies mentioned under paralysis might be used, to meet any indication.

STAMMERING.—Hesitation of speech consists of interrupted articulation, accompanied with distortion of the features. It may be due to malformation, but generally it is of a spasmodic character—depending upon a want of equilibrium between the gray and white matter of the cervical portion of the cord.

It sometimes arises from an effort to speak when drawing in the breath.

*Treatment.*—The patient begins by filling the chest well, before he makes an attempt to speak, and then enunciates one word after another slowly.

Let him avoid the usual hurried repetition of the same syllable. A persistent course of measuring words, until the stammerer can read and talk straight forward slowly, for an hour at a time, will overcome the habit in numerous cases.

The internal medicinal treatment must be direct to the cure of nervous peculiarities, the most important remedies are: *phosphorus*, nux, aconite, belladonna, scutellarin, macrotin, and electricity by faradization, the calabar bean has also been successful.

## HOOPING-COUGH.

Hooping-cough is an infectious disease, rarely occurring more than once in a life-time; manifested by a convulsive cough, interrupted by a full and sonorous inspiration, and returning in fits that are usually terminated by a vomiting or expectoration, attended by a slight fever, and that peculiar cough returning at intervals. Its duration varies from six to eight weeks. It is a disease peculiar to children. It is undoubtedly a disease of the nervous system; the parts implicated being the pneumogastric nerve and medulla oblongata at its origin. Like all other contagious diseases, it runs a very regular course, and gives immunity against a subsequent attack.

Hooping-cough often prevails epidemically, but does not, in this respect, appear to be influenced by any particular season of the year. It is much milder in warm climates than in cold ones; and it would seem, in conformity to this law, that the disease is found to be more severe in this country during autumn and winter than during spring and summer. It arises generally from contagion, it is true; still, it must be allowed that there is a principle, independent of contagion, capable of producing this complaint, and that this principle undoubtedly exists in the atmosphere, which it pervades to a certain extent; but what it is, and how formed, remains a subject for physical research. Usually, it is contracted only when children are brought into immediate proximity, that the breath or the exhalations of the disease is inhaled. This, however, is not always the case, as many take it when at a considerable distance.

*Symptoms.*—Hooping-cough, depending upon some poison affecting and irritating the pneumogastric or vagus nerve, exhibits itself in its incipient stage by a slight febrile stage of from eight to twenty days, which is sometimes accompanied, but generally followed, by violent paroxysms of coughing. The little patient is seldom confined to bed, but is restless from the coryza, oppression of the chest, and heat of the skin. As the fever abates, the cough assumes its peculiar shrill sound or hoop. Before the paroxysm comes on, the child instinctively has a sort of a precognition of an attack, and runs to its mother for protection. The series of coughs or expiratory efforts are so powerful, and expel the air so violently and so largely from the lungs, that the patient seems on the point of suffocation, until a long, protracted inspiratory act follows; the rush of air through the contracted glottis causing the characteristic crowing or hoop. As soon as it is over, the child regains his courage, soon appears well, returns to his play; while, even if it end in an attack of vomiting, the patient almost immediately wants something to eat.

The frequency of the paroxysms varies very much; there may be one, two, or three daily, or as many in an hour.

The duration of the affection is extremely variable; some being susceptible of cure in two or three weeks, whilst others, with very best of treatment, continue troublesome for months. It is more obstinate in the fall and winter than at any other time.

*Complication.*—Although the hooping-cough often proves tedious,



and is liable to be aggravated by fresh cold, when not entirely removed, it nevertheless seldom proves fatal, except to very young children, who are likely to suffer more from it than those of a more advanced age. The danger is in proportion to the youth of the person, the degree of fever, the difficulty of breathing, as also the state of debility which prevails.

Cases sometimes terminate in apoplexy and suffocation. It sometimes co-exists, or is complicated with, asthma, bronchitis, pneumonia, disordered bowels, consumption.

If the fits end by vomiting, it may be regarded as a favorable symptom; so also is a moderately free expectoration, not being so apt to cause pneumonia. An airless condition of a part of the lung is often found to arise in certain cases. It has been designated by various terms: pulmonary collapse or marginal pneumonia. The margin of the lungs, and the vesicles most distant from the roots, are the parts which are likely to undergo this change. It is not at all fatal, unless erroneously treated by depressing agents. The poison of hooping-cough may co-exist with other poisons; as with small-pox, measles, &c.

*Diagnosis.*—It is easily recognized by the character of the cough, its long-continuance, and the peculiar hoop, &c., &c.

*Treatment.*—In the treatment of hooping-cough, we are, in its first or primary stage, to moderate its violence, palliate the urgent symptoms, and, at a more advanced period, to arrest its progress and put a stop to it by suitable remedies, sooner, perhaps, than it would spontaneously have ceased; and, above all things, to keep it simple—to prevent other affections complicating it. Numerous plans of treatment have been recommended for this affection, but most of them of an empirical character; all, however, agree on the value of emetics; by all practitioners they are found the most useful in hooping-cough, and they should never be neglected. The wine of opoe. forms a pleasant agent, and, as it does not depress, seems to answer well; it affords marked relief, and in bad cases it may be repeated daily. In mild cases, very little management is required; the patient should be warmly clothed, kept from the vicissitudes of weather, fed with light, nourishing diet, and allowed to drink freely of some nourishing drink. A very excellent one consists in dropping about eight or ten drops of strong muriatic acid into a pint of cold water; cut into small pieces one pound of lean meat, put into a hair sieve, have a vessel below it, and pour on the pint of acidulated water; continue the process of repouring, say over half a dozen times; then we have a drink eminently tonic and nourishing, and one well-calculated to do good in this affection.

In all cases, I have found it of great utility to use brisk friction to the spine, every night and morning, with either of the following liniments: equal parts of chloroform, tinctures of aconite, belladonna, and nux vomica; or equal parts of tincture belladonna and stramonium; or apply a belladonna plaster to the spine. I have also found a plaster to the chest of some advantage, or rubbing it morning and night with a stimulating liniment, composed of equal parts of the oils of lobelia, stillingia, and alcohol.

Constipation usually prevails. It will be necessary to have recourse to gentle laxatives, such as the neutralizing cordial, a teaspoonful with one grain of leptandrin and two of juglandin, a few drops of tincture of *nux vomica*. As a general thing, fruit diet may be given for this purpose.

With regard to the more severe forms of the disease, the following prescriptions will be found of value: *R*.—Tincture belladonna, gtt. xxx; alum,  $\mathfrak{z}$ i; syrup senega, syrup tolu,  $\mathfrak{a}\mathfrak{a}$   $\mathfrak{z}$ ii.—*M*. Or, *R*.—Huxham's tinct. bark,  $\mathfrak{z}$ v; tinct. lytta, tinct. camphor,  $\mathfrak{a}\mathfrak{a}$   $\mathfrak{z}$ ss; tinct. belladonna, gtt. xxx.—*M*. *R*.—Dilute nitric acid,  $\mathfrak{z}$ iss.; C. tinct. cardamon,  $\mathfrak{z}$ iii.; simple syrup,  $\mathfrak{z}$ iiiss.; water,  $\mathfrak{z}$ i.—*M*. Or, *R*.—Extract conii, grs. xv.; alum,  $\mathfrak{z}$ ss.; ether sub.,  $\mathfrak{z}$ ii.; syr. simplex,  $\mathfrak{z}$ iv. Whichever of the above is resorted to, should be given in teaspoonful doses, say every two or three hours.

The various anti-spasmodics, such as morphia, henbane, conium, belladonna, hydrocyanic acid, ether, chloroform, lobelia, sanguinarin, &c., have all been used with success. Astringents combined with these anti-spasmodics may be used with great advantage. *R*.—Tannin, gr. iii.; ext. belladonna, gr. i.; ext. cicuta, gr. iv.; inf. senna,  $\mathfrak{z}$ ii.; aq. fœnicul; syr. althea,  $\mathfrak{a}\mathfrak{a}$   $\mathfrak{z}$ i.—*M*. A teaspoonful every two hours.

Cochineal mixture, clover-hay, in infusion, coffee, and numerous remedies have been put forth as specifics for this affection.

For special treatment, in bad cases, I prefer the tincture of the black cohosh, in fifteen-drop doses, every four hours, in alternation with one, two or three drops of tincture of belladonna, according to the age of the child; or, combining the black cohosh with two or more grains of the iodide of ammonium. For obviating the fatal tendency of the disease, and putting it into a safe course, the above remedies can be relied on. The tincture of digitalis, hyoseyamus, stramonium, have been used with seeming advantage. Where there is great irritation of the mucous membrane, I have found the oil of skunk-cabbage berries, in three drops, useful; or, either of the following, in suitable doses: *R*.—Muriate of hydrastin,  $\mathfrak{z}$ i.; cochineal, grs. xx.; syr. stilingia,  $\mathfrak{z}$ ii.—*M*. *R*.—Sulphate cinchonin; muriate hydrastin,  $\mathfrak{a}\mathfrak{a}$ . This combination of cinchonine with the muriate of hydrastin, is excellent for children, being nearly tasteless; it is easily administered. Where the secretion from the bronchial tubes is excessive, it can be checked by either of the above formulæ, better than by such remedies as alum, sulphate of zinc, the mineral acids, infusion of bark. If the case becomes chronic, a cure may be effected with iron, or the elixir of cinchona and iron.

Experience has taught us that a frequent change of air is extremely serviceable in this disease, and such never should be omitted if attainable. Thorough hygiene should be enforced; daily bathing, or sponging the surface; flannel should be worn next to the skin, as it promotes absorption, and prevents the vicissitudes of the climate, taking that effect on the skin which is often an exciting cause of coughing. The diet should be bland, nourishing, and easy of digestion. In sleep, elevate the head and shoulders, and let the patients be care-

fully placed, that when the cough occurs, they may be held up, so as to stand on their feet, a little forward.

### ASTHMA.

This disease is a spasmodic affection of the lungs, which comes on by paroxysms most generally at night, and is attended by frequent, difficult and short respiration, together with a whizzing noise, tightness across the chest, and a cough, all of which symptoms are much increased when the patient is in an horizontal position.

Asthma rarely appears before the age of puberty, and seems to attack men more frequently than women. Dyspepsia always prevails, and appears to be a very prominent feature in the predisposition; more prominent among men than women. When the disease is attended with an accumulation and discharge of mucus from the lungs, it is called humid asthma, but when accompanied by expectoration, dry or spasmodic asthma, idiopathic or spasmodic, symptomatic or organic.

Asthma is essentially a nervous disease, being dependent upon tonic contraction of the circular muscular fibres of the bronchial tubes. The paroxysm may be induced by direct or reflex mechanism, or, in other words, it may be central in the medulla oblongata, or it may be in the pulmonary, or gastric portion of the pneumogastric, or some other portion of the nervous system, being transmitted to the medulla oblongata, from thence reflected by motor filaments. There are no pathognomonic physical signs of this disease, but it is always most important to determine the co-existent condition of the heart and lungs.

In some instances, the respiration is universally puerile during the attack; and diminished pulmonary elasticity with bronchial complication, is often indicated by the prolonged, laborious, and wheezing expiration.

In spasmodic asthma, the respiratory murmur is very feeble or absent, during the fit. In all kinds of the disease, percussion elicits a clear pulmonary sound.

*Exterior.*—We should particularly examine the upper portion of the sternum, whether or not it is projecting; also, whether there is a fullness immediately above that bone, and round the base of the neck.

*Percussion* would give a dull sound under the upper half, or even the entire sternum, extending, probably, to a certain extent, on either side of that bone.

*Auscultation.*—The ear, at a distance from the chest, detects an incomplete, acute, hissing inspiration, or rather cry, while the expiration and voice are croupal, both at the accession and termination of the fit. The heart's action is distinct and feeble.

**THYMIC ASTHMA.**—The general characteristics of this interesting and important disease are, its attacking children from the age of three weeks to eighteen months; and also, the suddenness of the paroxysm, coming on generally at the moment of awaking, or in the act of swallowing;



the child lying on its back, the duration of the fit varies from a few seconds to three minutes, and death may almost instantaneously follow. The above diagnosis is inferred from the pathology of the disease, not from actual experience.

*Symptoms.*—A fit of asthma is either preceded by headache and sleepiness, or by various digestive or other disturbances; or it may occur without warning. More generally, however, on the evening preceding an attack of asthma, the spirits are often much depressed, and the person experiences a sense of fullness about the stomach, with lassitude, drowsiness, and a pain in the head; later, a sense of tightness and stricture across the chest; the difficulty of breathing continues to increase; both inspiration and respiration are performed slowly, and with a wheezing noise; the speech is difficult and uneasy; a propensity to coughing succeeds; the patient can no longer remain in the horizontal position, being, as it were, threatened with immediate suffocation. Or it may be that the patient awakes two or three hours after midnight, with a sensation of suffocation, or constriction about the chest; the dyspnoea gradually increasing, until a painful and fearful struggle for breath sets in.

Various postures are assumed to facilitate the attempt at emptying the lungs; the patient stands erect, or leans his head forward on his hands, on some piece of furniture, or rushes to the open window, at which he will remain almost for hours gasping for air. The chest is distended to its utmost limit, inspiration and expiration are performed with the greatest difficulty, and there is evidently some serious obstruction to the entrance and exit of air.

During the fits the pulse is not usually much affected, but in some cases there is a frequency of it, with some degree of thirst and other febrile symptoms. In some persons the face becomes turgid and flushed during the continuance of the fits, but more commonly it is pale and shrunk. Urine voided at the beginning of a fit is generally in considerable quantity, with little color or odor; but after the fit is over, what is voided is in the ordinary quantity, of a high color, and sometimes deposits a sediment.

*Causes.*—It may be hereditary, or due to organic disease of the chest, and in other cases no cause can be detected. It may be due to congestions of blood, noxious or irritant air inspired into the air-passages, such as dust, cold air, certain vapors; the influence of particular atmospheres or climatic conditions; certain diathesis, such as the scrofulous, gouty, psoric, and scorbutic; dyspepsia, or irritation of the abdominal viscera; dyspepsia, or eating improper food, or late suppers; irritation of the bronchial system by any cause, suppression of long accustomed evacuations, frequent catarrhal attacks, debility, water in the chest, polypi, peculiar condition of the blood.

Asthma, once having occurred, is very liable to return periodically, and more especially when excited by certain causes, such as a sudden change from cold to warm weather, or from a heavier to a lighter atmosphere; by severe exercise of any kind, which quickens the circulation of the blood; by an increased bulk of the stomach; by exposure



to cold, obstructing the perspiration, and thereby favoring accumulation of blood in the lungs, by disagreeable mental emotion.

*Prognosis.*—The proximate or immediate cause of the disease is, a preternatural or spasmodic constriction of the muscular fibres of the bronchia, which rarely, if ever, destroys life, and many affected with it live to a good old age. A complete cure is often effected; nevertheless, the disease is a serious one, chiefly on account of the cardiac and pulmonary conditions, the chief of which are, congestion of the lungs, emphysema, hypertrophy, and dilatation of the right side of the heart, and when these conditions are established, the patient has a poor time of it indeed.

*Treatment.*—In the treatment of asthma, we should endeavor to moderate the violence of the paroxysms, and when they have subsided, prevent their recurrence. With the view of preventing any danger, and removing any difficulty that may exist, we would give an emetic of the C. tincture of lobelia, or the same, per rectum, if it is thought to arise from irritation from the alimentary canal. This may relieve and relax the bronchial spasm; if not sufficient, we would keep the patient under the influence of the lobelia, either internally in small doses, or the oil cut with alcohol, and bathed over the throat and chest. I have succeeded well with lobelia; the common tincture, in twenty-drop doses every few hours, with five grains of the bromide of potassium, act like a charm. Other sedatives may be used; *tobacco*, to those not accustomed to smoking, frequently does good; with the nausea and collapse, the attack of asthma ceases. Chloroform, ether, stramonium, act in certain cases like a charm. The fumes of blotting paper, soaked in a solution of potash and dried, give relief in uncomplicated cases. Instances now and then occur, where relief is quickest obtained from a stimulant, such as coffee, brandy, ammonia, xanthoxylin; gelsemin succeeds when all fail.

The most important part of treatment consists in improving the general health, by tonics, a regular mode of life, and the daily use of the sponge or cold shower-bath, to prescribe rules as to diet, to obviate attacks of dyspepsia, to have the meals so arranged that supper may be digested before bed-time. The inhalation of oxygen gas gives relief, since it affords the system an excess of oxygen. Bromine acts well. It is impossible for me to speak too highly of the value of subcutaneous injections of a solution of gelsemin, in affording prompt, instantaneous relief from the paroxysm, and a repetition, to ward off subsequent attacks.

As regards counter-irritation to the spine, galvanism, &c., experience has clearly proved their utility. Considering the disease as purely nervous, a course of treatment calculated to stimulate and invigorate the brain and spinal cord is eminently proper, highly consistent and very successful.

## BRONCHITIS.

Inflammation of the bronchial tubes is an extremely common affection. Bronchitis may be acute or chronic; one or both lungs may be affected, or only a portion of them.

Acute bronchitis is a dangerous disorder, on account of the frequency with which the inflammatory action spreads to the vesicular texture of the lungs.

*Auscultation* discovers sibilant, sonorous, mucous or submucous rhonchi; separately or combined, partial or general, constant or occasional, and modified by the cough and expectoration.

The *inspiration* may be natural or slightly puerile; at other times it is feeble, or temporarily interrupted over a limited portion of the lung.

The *expiration* is in general more prolonged, louder, and wheezing.

*Percussion* is everywhere normal; there is no vocal or other resonance, nor any external modification of the chest.

*Remarks.*—Simple bronchitis almost invariably commences in the *lower and posterior* portions of the lungs; it usually attacks *both sides*, advancing from below upwards.

M. Louis has found no exception to this law, which is the inverse of that of phthisis. If the affection is only slight, or only occupies the larger tubes, or if the patient has just expectorated, no physical signs may be detected. The diagnosis is then founded upon the cough and expectoration.

The acute and chronic mucus and pituitous catarrhs—the dry and suffocative—are principally distinguished by the duration of the case and the general symptoms, and also by the amount and character of the expectoration.

*Symptoms.*—The chief symptoms are, fever, tightness or constriction of the chest, hurried respiration, with wheezing, severe cough and expectoration, at first of a glairy mucus, which subsequently becomes purulent. The pulse is frequent and weak, tongue foul; there is headache, lassitude, sickness and great anxiety.

*Treatment.*—Act thoroughly on all the secretions by the appropriate remedies, then put the patient under the influence of the C. tincture of lobelia and gelseminum, so as to induce expectoration. If there is great depression, stimulants, milk punch, carbonate of ammonia; active counter-irritation over the chest and back by dry cups, following with turpentine stupes, or the irritating plaster, which should be re-spread every third day, or the comp. stillingia liniment. If the case does not yield quickly, more energetic means must be used; we might use the vapor-bath, and, internally, the C. tinct. serpentaria in an infusion of asclepias and eupatorium. To act powerfully on the kidneys, the acetate of potash, gelsemin and cannabis indica should be resorted to, or small doses of aconite and veratrum might be given internally. Where we have fever, it is usually of a remittent type; some preparation of bark is indicated, the sulphate of cinchonine or quinine. If expectoration is scanty, stimulating agents might be given, such as the syrup of senega, tolu, squills, sanguinarin, &c.; or the

bromide of potassium in some vehicle. The stimulating-expectorant plan of treatment is often successful; at the same time, beef essence, the inhalation of the vapor of vinegar, or other agents; then put the patient upon special treatment:

*Aconite*, if there are febrile symptoms; *belladonna* or *gelsemin*, if there is constriction about the chest; *pulsatilla*, if the cough is dry; *sanguinarin*, if there seems to be a general torpor of the mucous membrane; *senega*, if there is dryness, irritation, oppression, impeding speech; *carbonate ammonia*, if there is prostration, loss of power in the respiratory apparatus; otherwise, remedies upon general principles.

In the treatment of asthenic cases, the treatment differs not materially; the feeble condition of the system, the imperfect circulation, relaxation of the bronchial mucous membrane, must be taken into account. In mild cases, the administration of stimulating expectorants with quinine, counter-irritation to the chest with dry cups, or Firmich's method, and the veratrin ointment applied. Inhalation may do good, but the very best results are to be obtained from bromide of potassium in the *stillingia* alt.,—say, *Rx.*—*Stillingia* alt., 5i; bromide potassium, ʒss.—*Misce.* Fifteen drops every three hours. Nourishment and stimulants must be perseveringly given.

The treatment of chronic bronchitis must depend very much upon the age and constitution of the patient. The most number of cases are benefited by stimulating expectorants, by tonics, by nourishing food, by stimulants. If the disease is due to the poison of syphilis, it is readily cured by the *C. syr. stillingia*, with the iodide or bromide of potassium and chloride of gold. If the patient be gouty or rheumatic, *irisin*, or the *C. tinct. corydalis*, with acetate of potash and iodide of potassium, does well; but if we have difficulty in expectoration, we must resort to such agents as *C. powder of lobelia*, and capsicum in *S. syr.*, or *tolu*, or *seillea*.

But, if the case is one of pure, uncomplicated bronchitis, we must pay attention rigidly to the skin, bowels and kidneys. We must improve nutrition by every means in our power; *cinchona* or *hydrastin*, the bitter tonics and mineral acids, hypophosphites and *nux vomica*, are all good curative agents. Iron and sulphur, in alternation with some of the above, where we have a deficient cutaneous circulation. To relieve any morbid irritation of the nervous system, *belladonna* and *hyoseiamin* should be given in a trituration of *aselepin*. Inhalations of the vapor of nitrate of potassæ, in an infusion of hops, or *hyoseiamus*, or *stramonium*, water and vinegar, or hydrocyanic acid, with a narcotic or sedative. If no success attend these, then tar, creosote, myrrh, iodine, chlorine, infusions of *podophyllin*, *sanguinarin*, *xanthoxylin*, and no agent must be used that gives rise to irritation. As in the acute form, when the expectoration is too profuse, we find *senega* and the balsams valuable. The oil of *lobelia*, one drop on sugar, acts like a charm; but the best agents to arrest the secretion thoroughly and positively, are, the *Collinsonia*, *achillea*, *ptelea*, *trillium*, *lycopus*, *polygonum*, *euonymus*, *xanthoxylin*, &c., made into a syrup.

The balsam of *copaiba*, *fir*, *tolu*, *Peru*, in mucilage, with some of

the essential oils, are employed with advantage. Judicious counter-irritation to the chest in all cases where the patient's strength will permit of it; Firminch's instrument and the irritating plaster are the best here.

## PLEURISY.

Pleuritis, or pleurisy, are terms applied to inflammation of the pleura, the serous membrane investing the lungs, and lining the cavity of the thorax. It may run an acute or chronic course; one side only is affected, though we occasionally have double pleurisy.

DIAGNOSIS OF ACUTE PLEURISY.—*Exterior of the Chest.*—There is seldom any visible alteration. When the effusion is extreme, signs similar to those in chronic pleurisy, will be observed. The motion of the affected side is diminished, and there is a local absence of vocal vibrations to the hand.

*Percussion.*—There is more or less of sound, with only moderate resistance, decreasing from below upwards, and following the direction of a horizontal line round the chest, in the inferior dorsal and lateral regions. *The dullness is diminished, or disappears on change of position.*

*Auscultation.*—The inspiration is feeble, distinct, or inaudible, but is restored by the condition last specified.

Ægophonic resonance of the voice is usually present when the effusion is in moderate quantity, and is best heard over a portion of the parietes, represented by a band, of three inches, running from below the inferior margins of the scapula, in the direction of the ribs, to the sternum.

*Resolution.*—The sound of percussion becomes gradually clearer, from above downwards; the ægophony ceases, and the respiration is restored. A rubbing, friction sound, occasionally accompanies both the invasion and resolution of pleurisy.

*Remarks.*—Simple pleurisy seldom attacks both sides at once. When this is the case, suspect tubercles.

DIAGNOSIS OF CHRONIC PLEURISY.—*Exterior of the Chest.*—The affected side is comparatively smoother, more rounded, and motionless; the intercostal spaces are *dilated and filled up*, or even slightly protruding. The eye and mensuration will, in general, detect some enlargement of the side. The thorax, however, in very chronic cases, is occasionally *smaller* than the opposite side; the intercostal spaces are diminished, and the ribs are closer, or even in contact, and more oblique in their direction. The corresponding shoulder is lower, and the dorsal spine is inclined to the healthy lung.

The triangular space above the clavicle, and the depression immediately above the sternum, are often strongly and permanently drawn downwards on the diseased side. There is no vibration experienced by the hand when the patient speaks. The parietes are sometimes œdematous, and fluctuation between the ribs may occasionally be felt. In certain cases of empyema in the right side, Dr. Stokes has remarked, that a *sulcus or depression*, evident to the sight and touch,



will be observed between the most convex portion of the liver and the false ribs, presenting much less resistance to percussion than either above or below, and evidently the result of the space left around the point of contact of two convex bodies, the upper surface of the liver, and the lower surface of the inverted diaphragm. It is not a permanent sign, but may be obliterated either by the absorption of the fluid, or the liver becoming impressed with the form of the diaphragm.

*Percussion.*—The sound is universally dull; or, if clear, only so in the upper portions, from the clavicle downwards. There is less resistance to the finger than in cases of hepatization. The loss of resonance extends *under the sternum*, and often *beyond it*, encroaching on the healthy lung.

*Auscultation.*—There is coarse or bronchial respiration between the scapula and vertebral column, round the root of the lung, with circumscribed, but intense vocal resonance. There is an almost complete absence of all other sounds over the remaining portions of the diseased side, except occasionally *transmitted* sounds, which are to be carefully traced to the healthy lung. No bronchophony, vocal, or other resonance.

*Partial adhesions* of the lung may produce occasional irregularities in the stethoscopic phenomena, but they can never neutralize the leading indications of pleuritic effusion.

*Effects of the Effused Fluid on the Adjacent Organs.*—*Right side.*—The heart is pushed further to the left, and the liver descends below the edges of the false ribs; the sulcus we have previously described is sometimes visible.

*Left side.*—The displacement of the heart to the right is still more palpable; the epigastrium is prominent, in consequence of an irregular and diffused swelling below the cartilages of the left false ribs, formed by the depression of the stomach. The spleen is lower down, and often detected by the touch.

*Resolution of chronic pleurisy.*—In addition to the external signs of decreased dimensions of the affected side, already enumerated, the *percussion* becomes gradually clearer from above downwards, though the sound is seldom as sonorous as over the healthy lung; occasionally it is permanently dull, and, in some very rare cases, tympanitic; the *respiratory murmur* is increasingly audible, superficial and vesicular; and the friction sound of false membranes is often both heard and felt; the displaced viscera resume their natural situations; various rhonchi usually accompany these changes.

*Is there pus or serum in the chest?* There are no certain distinctive physical signs. The duration of the case, the general symptoms, and, particularly, the rapidity and amount of yielding in the diaphragm and intercostal muscles, must form our principal guides. The introduction of a grooved needle into the pleural cavity, recommended by Dr. Davis, in his lectures on diseases of the chest, will, of course, remove all doubt.

**DIFFERENTIAL DIAGNOSIS.**—*Partial effusion and pneumonia.*—In the former case, there is no crepitation; and the dull sound on percus-

sion, occupies the most dependent portion of the chest, and is displaced by change of position.

**CHRONIC PLEURISY AND PNEUMONIA.**—In pneumonia, the dimensions and external characters of the chest are unaltered; the intercostal spaces are not filled up; the dullness on percussion is more resisting, and does not extend beyond the *centre of the sternum*; the adjacent viscera are not displaced. We may also add, that bronchophony, bronchial respiration, and vocal vibrations, are only present in pneumonia, and the side is not so absolutely motionless as in chronic pleurisy.

**CHRONIC PLEURISY AND ENLARGED LIVER.**—In hepatic enlargement, the intercostal spaces remain depressed, and the side does not present the smoothed, rounded appearance, resulting from fluid pressure. Percussion would also elicit a clear sound for some distance under the clavicles; and the line of dullness would be depressed both before and behind, by a deep inspiration. The lower boundary of the liver would also probably indicate its increased dimensions; the edges of the right false ribs would be everted, and there would be no sulcus in the right hypochondrium. The heart, if displaced, is pushed *upwards*, and to the left, by the liver.

**CIRCUMSCRIBED PLEURISY.**—*Percussion* would give dullness of sound, with moderate resistance, over an irregular space, not modified by change of position.

*Auscultation.*—The respiratory murmur is absent, or distant and feeble, while it is natural or puerile in the vicinity. *Ægophony* would probably be discovered, over or round some portion of the edge of the effused fluid.

*Remarks.*—In the division of pleurisy into acute and chronic, we have simply intended to insist upon the physical signs of partial or general effusion into the pleural cavity. We, therefore, include in the preceding description, the diagnosis of *empyema*, *hydrothorax* and *hæmothorax*, and all the intermediate degrees of pleuritic effusion, merely observing, that the muscular part of the parietes is liable to be affected, in proportion to the inflammatory nature of the disease.

*Symptoms.*—It is usually ushered in by chilliness, or slight rigors, followed by fever, and an acute lancinating pain in the side, called a stitch, which pain is commonly seated below the nipple over the antero-lateral attachment of the diaphragm. It is aggravated by the expansion of the lung in inspiration, by coughing, by lying on the affected side, by pressure. There is also a short, harsh cough, the skin is hot and dry, cheeks flushed, pulse hard and quick, respiration increased in frequency, anxiety, restlessness, urine scanty, high-colored. If we put our ear to the painful part, we hear the dry inflamed membrane, the pulmonary and costal pleura rubbing against each other, and producing a friction sound; this rubbing can also be felt by the hand. But the sound soon ceases; either the inflammation terminates in resolution, and the two surfaces of the pleura regain their natural moisture and smoothness, or the roughened and inflamed surfaces get adherent; or, they become separated by the effusion of serum. If the pleurisy has been severe, the effusion becomes enormous.

*Diagnosis.*—The sharp, lancinating pain, with difficult respiration and cough, and febrile action, are sufficient to determine the nature of the disease. The mitigation of the pain, oppression of breathing, dullness on percussion, diminished respiratory movement, determine that effusion has taken place.

*Treatment.*—The objects in the treatment of pleurisy must be directed to the removal of the inflammation, to lessen the rapidity, and equalize the circulation by different means, and prevent the flow of blood to the pleura. This can be accomplished in various ways. It can be accomplished by keeping the patient thoroughly under the influence of our arterial sedatives, such as veratrum, aconite, gelsemin, lobelia. From the well-known power which these agents possess over the heart and arteries, they are invariably used with advantage in pleurisy. To aid these remedies, we like profuse diaphoresis; we would use the vapor-bath daily, and resort to the administration of an active diaphoretic, as the C. tinct. serpentariæ. These remedies act promptly; they are powerfully relaxant, sedative, revulsive, and often arrest the disease.

As strong purgatives are found to determine the flow of blood to internal parts, I regard them as improper agents in pleurisy. It is well to get an action of the bowels with podophyllin and leptandrin, to obviate constipation, and afterwards to relieve them by mild measures. Alkaline diuretics are important, as the acetate or citrate of potash. To allay the pain in the side, and take off the inflammation internally, it is always advisable to use dry cups freely, and follow with the irritating plaster, or Firminch's method, and follow with veratrin ointment. A free expectoration being the means that nature adopts to relieve herself of this inflammation, it should be encouraged by every possible means, such as inhaling the vapor of warm water, or administering some expectorant. As opiates tend to check perspiration and expectoration, they should, as a general rule, be avoided. It is true the patient must have sleep, but what will aconite, gelsemin and the sponging the surface not do in the way of an anodyne. Some cases are so mild, so easily controlled, that, instead of the cups and such active measures, fomentations of hops, or stramonium may be substituted. For establishing convalescence, a thorough tonic course should be adopted. Throughout the whole course of the affection the patient must be carefully nursed, his strength supported by the best means. On his recovery, he must guard against any fresh exposure to cold, as a return of the complaint is usually attended with very bad consequences.

*Chronic pleurisy* yields slowly to measures that promote absorption, remove irritation, and restore the tone of the system. Active counter-irritation must be rigidly adopted; then a thorough alterative course; such remedies as menisperm, corydalin, cornin, hydrastin, irisin, iodide of potassium, &c., are entitled to our highest confidence. Great benefit is derived from bathing with salt-water and brisk friction daily, otherwise the treatment must be on general principles.

Many of our profession adopt the following remedies, very efficient and most always at hand: Either a moderate dose of the anti-bilious

physic, or use some of the salines, as epsom salts or cream of tartar, for general action upon the serous membranes, and on the kidneys. Mustard over the affected part, to redden the skin, then apply the irritating plaster, which at once allows the patient to breathe easier. A teaspoonful of comp. tinct. serpentaria in a wine-glass of warm, sweetened water. Apply vapor-bath to the body and feet. Tinct. lobelia and ipceac, half-drachm each in a wine-glass of water, repeated to nauseate the patient, and kept at this point. At bed time, and through the night, the C. tinct. serpentaria, to induce repose. Keep the patient under continued perspiration.

## PNEUMONIA.

Pneumonia, or acute inflammation of the substance of the lungs, is a serious disease, commonly ushered in by general febrile disturbance. At the end of from one to three days there are rigors, which are soon followed by nausea, cough, pain in the side, distressed breathing, a pulse of nearly one hundred and sixty in the minute, burning heat of skin, thirst, loss of appetite, prostration, headache, transient delirium.

Every case of pneumonia consists of three stages; engorgement, red hepatization, and gray hepatization. In each stage there is fever; more or less pain in some part of the chest, more severe at the commencement; accelerated and oppressed breathing; great depression, occasional delirium; cough; expectoration of viscid, rust-colored sputa, which unite in a mass so tenacious, that even inversion of the vessel would not detach them. If these sputa be minutely examined, they will be found to consist of the debris of the lungs, mucus, epithelium, exudation matter, blood-cells, oil globules.

In the stage of engorgement, the substance of the lung becomes loaded with bloody serum; in the second stage, the spongy character of the lung is quite lost; it is hard and solid; and in the third stage, we have diffused suppuration of the pulmonary tissue, parts of it remaining tense and impermeable. In many instances, we have a true suppuration.

Chronic pneumonia may be a sequel of the acute. Typhoid pneumonia, where all the symptoms are indicative of feeble vitality, and where we have a rapid change in the constituents of the blood. Pneumonia may affect one lung, or both; or, technically speaking, may be double or single. The right lung suffers from inflammation nearly twice as often as the left; about once in eight cases both are affected. The lower lobes are more obnoxious to inflammation than the upper. Average duration, fourteen days; if complicated, longer. Pneumonia, without bronchitis, is probably never seen.

FIRST DEGREE.—*Percussion* in general, recognises some diminution of the sound over the affected part.

*Auscultation*.—An equal, rather dry, crepitating rhonchus may be detected. It is best heard at the close of a deep inspiration, or with the cough, and is not displaced by the latter. The respiratory murmur is intermingled with the crepitus rhonchus, or absent; it is natural



or puerile in the vicinity. The voice and cough are rather more resonant than usual.

**SECOND DEGREE.—Hepatization.**—The motion of the affected side is impeded; and, just above the sternum, and in the corresponding triangular space on either side, there is frequently an evident depression.

The *percussion* is quite dull in all positions of the patient, and very resisting to the finger.

*Auscultation.*—The crepitation is replaced by bronchial inspiration and expiration. The respiratory murmur is louder in the other portions of the lung; the voice and cough are more resonant; the heart's action is also more distinct.

**THIRD DEGREE.—Suppuration.**—The same physical signs may continue, but usually the voice and cough are less resonant, and a coarse mucous rhonchus is heard. In this stage, cavities, gangrenous or suppurative, may be formed; they will present the ordinary physical signs. To distinguish the third from the second stage of pneumonia, we must be guided also by the duration and general symptoms of the case, and by the expectoration.

*Signs of resolution from the first degree.*—The crepitating rhonchus is at first mingled with, and afterwards replaced by the healthy respiration.

Percussion, and the other conditions, become natural.

*Signs of resolution from the second degree.*—A slight and unequal crepitating rhonchus is heard at the close of each inspiration, gradually becoming more abundant, coarser, and associated with diminished resonance of the voice and cough; the inspiration by degrees becomes more vesicular; and the expiration more distant and feeble. These changes are accompanied by increasing clearness on percussion. We may remark that, in some chronic cases, the bronchophony increases at the moment of resolution.

Resolution from the *third degree* very rarely, if ever, takes place. The physical signs would not materially vary from those we have just enumerated.

**CENTRAL PNEUMONIA.**—The crepitating rhonchus of the first stage, or the bronchial respiration and vocal resonance of the second, are heard deep in the chest, through the natural or puerile respiration on the surface. The sound on percussion may, or may not be altered. The diagnosis requires great attention.

**LOBULAR PNEUMONIA.**—It could only be suspected from the rapid alterations of the indications of a healthy and hepatized lung. Its recognition in general is very uncertain.

*Remarks.*—Under the age of fifty, pneumonia most frequently attacks the *lower lobes*; above that age, the *upper*. Simple pneumonia seldom occupies both lungs at once; it neither displaces the adjacent viscera, nor alters the dimensions or form of the thorax. It is frequently associated with bronchitis; and the wheezing, incident to accidental existing catarrhs, is rendered more distinct by a hepatized lung.

*Treatment.*—From an extensive practice, I am satisfied that pneu-

monia in its early stages can be arrested, cut short, and all dangers to the structure of the lungs thus avoided. To diminish the action of the heart and arteries, to effect sedation, establish secretion, which, being accomplished, an acute inflammatory condition cannot go on. For this purpose, aconite, veratrum, gelsemin and aselepias combined, answer well. If the bowels require evacuation, strong purgatives ought not to be employed, but gentle aperients of a cooling nature; mild purgation is admissible, but never drastic ones. As an adjunct, the alkaline-bath three times daily, the mustard foot-bath, and sufficient doses of some anodyne to give sleep, and of citrate of potassa to act upon the kidneys. Over the affected lung, counter-irritation, dry-cupping, following with the irritating plaster.

On the third or fourth day the patient is free from fever and pain, and ready for the employment of tonics, the best of which are bark, hydrastin, &c. This is my plan of treatment, of cases that I get hold of in their incipency. I depend on the arterial sedatives, keeping the pulse at seventy or so, free skin, kidneys and bowels, and toning up the system. But, if the above does not succeed, I keep on with the same species of sedation, more active counter-irritation, resort to the vapor-bath, and large doses of *C. tinct. serpentaria*.

Hot fomentations over the affected side are good, but they interfere with more active treatment.

In numerous cases of pneumonia, the irritation of the respiratory organs is so great as to keep up a harrassing cough, to the great injury of the patient. To relieve this, free expectoration is the means that nature adopts to relieve herself; we ought, therefore, to promote this as much as possible, by giving such remedies as are supposed to have the power of promoting a secretion from the parts, such as nauseant expectorants, *C. powder of lobelia*. To assist the effect, as well as to release the vessels of the lungs, I have found the inhalation of vapor of great advantage; the vapor of chloroform might occasionally be used, or water, or the steam of vinegar, making use of a pediluvium every night. All that is necessary besides is a light diet, with a free supply of cold water as a drink, together with beef tea and wine, as soon as the symptoms demand them.

In typhoid pneumonia, when the loss of strength and congestion of the lungs are marked, we must adopt a treatment, same as typhoid fever, at the same time promoting expectoration and relieving inflammation. As a rule, patients, suffering from typhoid pneumonia, bear stimulants well, and should have them in sufficient quantities to maintain the integrity of the system, and nothing must be used that depresses the vital powers.

At the beginning of an attack of pneumonia, opiates prove injurious by interrupting expectoration, and should not be prescribed in the early stage of the disease. In a more advanced stage, where a cough is the only urgent symptom, opiates are useful, and should be given so as to obtain sleep for the patient.

During the whole of the complaint the patient should be confined to bed, lying with his head and shoulders elevated as much as possible; the most perfect quiet enjoined; the air of the apartment should be

kept moist by the evaporating of boiling water, say at a temperature of sixty degrees, and the strength well maintained by milk punch, beef essence, &c. On recovering, he should carefully guard against any exposure to cold, or irregularity, or excess, which might occasion a relapse; for no form of inflammation is so apt to recur as pneumonia and a return; a recurrence often lays the foundation of consumption. Should the inflammation terminate in gangrene, stimulants and tonics will be especially demanded; the general plan of treatment must be modified, to meet the pressing indication; brandy, as large as can be borne, quinine freely, inhalations of pyroligneous acid or turpentine, are often successful. In this stage of the disease everything that would derange the alimentary canal must be avoided. This should be rigidly attended to, a mild emetic, we must avoid purgation, and meet the symptoms by the appropriate means. We must sponge the dry, hot skin, and give refreshing draughts. We must allay pain, ease the cough, stop diarrhoea, when it arises, and procure sleep by the proper means.

To support the vital powers, and resist the tendency to putrescence, it is always right and highly judicious to give stimulants, and, of all, I prefer brandy. If the fever exhibits a remittent type, we must never omit that sovereign remedy, bark. If we succeed in removing the symptoms of putrid pneumonia, we must have recourse to the restorative wine bitters and other tonics, in order to strengthen the stomach and system in general.

## HÆMOPTYSIS.

Whenever we have a manifestation of hemorrhage from the lungs, we are prone to attribute it to a tubercular origin; but, exempt from tubercles, they appear to suffer no more from hemorrhage than other parts. The existence of hæmoptysis shows an afflux of blood to those organs, an undue irritation; still, it is a rare affection, except as the result of tubercular deposit. When the hemorrhage is from the mucous membrane, there is hawking, without any pulmonary oppression, coughing or vascular excitement. It may come from the lung tissue; if so, the symptoms are, intense oppression, even to threaten suffocation.

*Diagnosis.*—Hæmoptysis is easily diagnosed by the bright fluid character of the blood, its being frothy, raised by an act of coughing or expectoration.

*Prognosis.*—Passive hæmoptysis is generally more intractable than active hemorrhage. The danger is influenced by the position whence the bleeding proceeds, and still more by the pathological condition. Caused by tubercle or any organic lesion, an unfavorable result may sooner or later be expected; such as emanate from the pulmonary substance itself, are almost uniformly fatal, but these cases are rare. Death from hæmoptysis seldom happens.

*Treatment.*—Place the patient in the recumbent position, head elevated, physical and mental excitement strictly avoided, drinks cool, room well ventilated, few attendants about. If the feet are cold, a



hot mustard foot-bath; then the application of artificial heat. Then our principal remedies are, *chloride of sodium*, *gallic acid*, *lycopin*, *veratrum*, *erigeron*, *lobelia*, *millefolium*, *arnica*, *cinchona*, *iron*, *ipecae*, *nitric acid*, *nux vomica*, *rhus*, *hyosciamin*, *digitalis*, &c.

If no other remedy is at hand, common salt, in half-teaspoonful doses, every half hour; if *veratrum* or *digitalis* is handy, give them with it. I prefer gallic acid, in five-grain doses, or a few drops of oil of *erigeron*, cut with alcohol or dropped on sugar; *aconite* or *epec*, if the paroxysms are preceded by fullness or congestion of the chest; *millefolium* possesses specific power over hemorrhage; hamamelin is also indicated in hemorrhages from mucous membranes.

If the hemorrhage is profuse, and the remedies named do not act speedily, apply ligatures to the lower extremities, and continue them almost to syncope; this will arrest the flow and give time for other remedies to act. Convalescence should be established on tonics, iron, fresh air, exercise, change of scene, nutritious diet; and an undue determination of blood to the lungs should be prevented by keeping the circulation of the cutaneous surface active.

## INJURIES OF THE CHEST.

**PNEUMOTHORAX.**—A diseased condition, consisting in the accumulation of air or gas within the pleural sac, accompanied by liquid effusion. This disease is rare. It may be caused by a fractured rib, which has lacerated the lungs; it may be caused by bursting of an abscess of the lung into the cavity of the pleura. On the affected side there is an absence of the respiratory murmur, with an exceedingly clear sound on percussion. As far as the mere surgical treatment of pneumothorax is concerned, if the breathing become very difficult, a grooved needle or small exploring trochar may be introduced between the fifth and sixth ribs.

**HEMOTHORAX**, or the presence of blood in the pleural cavity, may be suspected, if, after some severe injury, as a fractured rib, there is great difficulty of breathing, dullness on percussion. The blood may proceed either from the intercostal artery or lung. If urgent symptoms threaten, paracentesis must be performed, in order to let the blood escape.

**HYDROTHORAX.**—Water on the chest is indicated by difficulty of breathing, especially when lying down; sudden startings from sleep, anxiety, palpitations of the heart, irregularity of the pulse, cough, paleness, anasarcaous swellings of the lower extremities, thirst, and a diminution of urine, which is high-colored, and, on cooling, deposits a pink or red sediment, are the characteristic symptoms of hydrothorax; but the one which is more decisive than all the rest, is a sensation of water being perceived in the chest, by the patient, on certain motions of the body, or, as if the heart were moving in a fluid.

The diseases with which hydrothorax is most likely to be confounded, are, empyema, angina pectoris, asthma, and organic affections of the heart, or aneurismal dilatations of the large vessels connected with it; but, by a close attention to the symptoms which have been pointed out



under these heads, we shall be able to distinguish between them with tolerable accuracy. By percussion with the hand upon the chest, and also by pressure on the abdomen, which considerably aggravates the sense of suffocation for the moment, as well as the other symptoms which attend on hydrothorax, we may be able, in many cases, clearly to ascertain the accumulation of water in the chest.

The causes which give rise to the disease, are pretty much the same with those which are productive of the other species of dropsy. In some cases, it exists without any other kind of dropsical affection being present; but it prevails very often as a part of more universal dropsy. Hydrothorax is frequently a disease of advanced life, and, like other dropsical affections, it often succeeds debility, however induced. It chiefly attacks males who have addicted themselves to free living, especially to potations of any intoxicating liquor. Such as have long suffered from gout or asthma, are peculiarly liable to it. It frequently takes place to a considerable degree before it becomes perceptible, and its presence is not readily known; the symptoms, like those of hydrocephalus, not being always very distinct. In some instances, the water is collected in both the sacs of the pleura; but at other times, it is only in one. Sometimes it is lodged in the pericardium alone; but, for the most part, it only appears there, when, at the same time, a collection is present in one or both of the cavities of the thorax. Sometimes the water is effused in the cellular texture of the lungs, without any being deposited in the cavity of the thorax. In a few cases, the water that is collected is enveloped in small cysts, of a membranous nature, known by the name of hydatids, which seem to float in the cavity; but more frequently they are connected with, and attached to, particular parts of the internal surface of the pleura.

Hydrothorax often comes on with a sense of uneasiness at the lower end of the sternum, accompanied by a difficulty of breathing, which is much increased by any exertion or motion, and which is always most considerable during the night, when the body is in a horizontal position. Along with these symptoms, there is a cough, which is at first dry, but which, after a time, is attended with an expectoration of thin mucus. There is likewise a paleness of complexion, and an anasarca swelling of the feet and legs, together with a considerable degree of thirst, and a diminished flow of urine. Occasionally the face swells, and pits, upon pressure, especially in the morning; and these signs of disease are accompanied by debility and loss of flesh. Under these appearances, we have just grounds to suspect that there is a collection of water in the chest.

The symptoms which have been described, gradually increase, but their progress is slow, and a considerable time elapses before the disorder is fully formed. The difficulty of breathing at length becomes excessive. The patient can seldom remain in a recumbent posture for any time, and the head and upper part of the trunk must be supported almost erect. The sleep is frequently interrupted on a sudden by alarming dreams, out of which the patient starts quickly up in bed, with a sense of impending suffocation. Convulsive efforts of the muscles, subservient to respiration, resembling an attack of spasmodic

asthma, with violent palpitations of the heart, generally accompany the paroxysms, which are also frequently excited by almost stifling voluntary motion, or by a fit of coughing.

When afflicted with these distressing symptoms, the patient is under the necessity of continuing erect, with his mouth open, and he betrays the utmost anxiety for fresh air. His face and extremities are cold; the pulse, with little exception, is feeble, irregular, and intermits in a degree seldom experienced in other disorders, and a pain or sensation of numbness, frequently extends itself from the heart towards the insertion of the deltoid muscle of one or both arms. Excepting a livid hue of the lips and cheeks, the countenance is pale, and indicates a peculiar anxiety and ghastliness of appearance, and, together with the upper parts of the body, is usually covered with a profuse clammy sweat. Drowsiness, coma, or delirium, occasioned by the difficult transmission of the blood through the lungs, and want of sleep, frequently attend the latter periods of hydrothorax, and from the same cause the expectoration is sometimes bloody. Now and then a sensation of water floating about can be distinctly perceived by the patient, on any sudden change of posture. No person has yet been able to point out the individual signs by which we can with certainty ascertain in which cavity of the chest the water is lodged, but some ingenious observations or data on this head have been offered by a late writer on hydrothorax.

The treatment of hydrothorax must be conducted on general principles, by emetics, cathartics, diaphoretics, diuretics, similar treatment to what is laid down under Bright's disease of the kidneys. That aliment which contains the greatest amount of nutriment in the smallest bulk, and which requires, at the same time, the least effort of the digestive organs, to convert it into animal juices, reason and experience point out as the best in hydrothorax. The food should be well masticated, and the free motion of the diaphragm never interrupted by a full meal. During a course of diuretic medicines, the patient should drink freely of liquids, and particularly of such as are supposed to increase the flow of urine. If all our endeavors to carry off the water, or promote its reabsorption, prove fruitless, and a fluctuation is evidently perceptible, and particularly when lodged in the pericardium, we should then perform paracentesis of the thorax. Where it is loose in the sacs of the pleura, or in the pericardium, we may, with the assistance of diuretics, joined with tonics, possibly effect a cure by means of this operation; but where it is accumulated in hydatids, or in the cellular texture surrounding the bronchial, we shall derive no advantage from it. The practice of evacuating water contained in the thorax, by an incision, is of as ancient a date as Hippocrates. For the mode of performing the operation, I beg leave to refer to another part of this work.

Before the evacuation of the water, the patient's system seldom admits of much bodily exertion. Somewhat, however, may be done by the frequent and diligent use of a flesh-brush, or by frictions with flannel all over the body, but especially over the chest, and as near the seat of the complaint as possible. From the circulation of the

blood being very weak and languid in the feet and legs, these parts are in general very cold, and ought, therefore, to be enveloped in worsted or fleecy hosiery stockings, being well rubbed every morning and night. The great coldness of the bodies of dropsical subjects, and the total want of perspiration, evidently points out the necessity of warm clothing, and there are no cases in which a flannel covering will be more beneficial, or more grateful to the sensations of the patient. As soon as the evacuation of the water will permit, or the relief of the urgent symptoms, no day should elapse without the patient's either walking, riding on horseback, or in an open carriage; for the frequent but gentle agitation of the body, and the moderate exertion of the muscles, together with the salutary influence of a healthy, pure atmosphere, will assist greatly in giving tone, vigor, and energy to the whole frame. The lungs of some persons who labor under hydrothorax, are, however, extremely susceptible to cold, frosty air, it being no sooner repaired than they are seized with a cough and wheezing, and experience a painful sense of constriction about the chest. Under such circumstances it will be best to keep within doors.

**EMPHYSEMA.**—An abscess of the chest, or suppuration of the pleura. It is an effect of acute inflammation. It is known only by dullness on percussion, increasing enlargement of the side of the chest, separation of the ribs, difficulty of breathing, and lying on the sound side, œdema of the parietes of the chest. If left to itself, the abscess may burst between the ribs. If the diagnosis is correct, paracentesis is required; if it be not, two or three punctures may be made with a grooved needle or exploring trocar, and a cupping-glass applied to extract some fluid.

Hydrops pericardi may occur under the same pathological condition, and may be combined with it. It may be suspected to exist if the patient complain of constant weight in the region of the heart, great difficulty of breathing, especially when lying on the back, faintness upon exertion, increased area of dullness over the heart, its pulsations tremulous, the circulation embarrassed. The treatment the same as hydrothorax.

**WOUNDS AND CONTUSIONS OF THE CHEST.**—In these cases, a firm roller, having an aperture to admit of dressing the wound, should be applied to prevent motion of the ribs. Aconite, veratrin and asepelin should be freely given to subdue the inflammation. Stimulate the secretions, allay cough and irritation by eypripedin, scutellarin, and hyosiamin.

**PENETRATING WOUNDS OF THE THORAX.**—These wounds are very rare of themselves, most generally are complications with wounds of the lungs. In some cases, when the chest is laid open, the lung collapses; in others, it does not recede from, but may protrude out of, the wound. In the treatment of these cases, remove all foreign bodies, splinters of bone; hemorrhage must be controlled by pressure; the intercostal artery, if wounded, should be tied; if this cannot be done, torsion; and if that fail, pressure must be maintained on the bleeding orifice. If the lung protrudes, return it quickly, unless it is beginning



to mortify. The gauze and collodion dressing are excellent here. Inflammation must be controlled by aconite, veratrin and gelsemin.

When the lung is wounded, there are the most urgent symptoms of dyspnœa and suffocation; the countenance pallid and extremely anxious; expectoration of blood, which is coughed up in florid, arterial mouthfuls, mixed with clots. There is always great danger in these wounds; hemorrhage may destroy the patient by exhaustion, or may fill up the air-passages and induce suffocation. Inflammation is sure to supervene from the injury, and is apt to be aggravated by the irritation of clots or other extraneous bodies, profuse, exhausting suppuration, with cough and debility, hectic, and all the symptoms of phthisis.

*Prognosis.*—This must be guarded.

*Treatment.*—The first and leading indication of treatment in these cases is to arrest hemorrhage. This must at once be attempted by the various means in our possession; hemostasis, the ligature applied around the various extremities, administering perchloride of iron, gallic acid, erigeron, matico, lycopin, &c. Then examine the wound; if it be large, or a gunshot wound, the finger should be introduced into it, to remove all clots of blood, splinters of bone, or any other foreign body. If not sufficiently large for the purpose, dilate it; secure the intercostal artery, if it is wounded: then accurately close the wound with lead-wire sutures, a compress of lint, and keep the patient as quiet as possible on the wounded side; give him plenty of fresh air, light covering, room darkened and perfectly quiet; give aconite, gelsemin, veratrum, if the pulse rises. If the pain increase, the spitting of blood return, the difficulty of breathing increase, give the remedies in larger doses.

The diet must be rigorously watched; cold acidulated drinks, lemon juice and ice, act freely on the bowels; allay cough with anodynes, if there is secondary hemorrhage resulting from the separation of sloughs. If, after the primary dangers of hemorrhage and inflammation have ceased, and the wound has closed, there are rigors, dyspnœa, signs of empyema, paracentesis is requisite, and if these symptoms come on soon after the injury, the paracentesis should be performed at the site of the wound, but if they come on at a distant period, the paracentesis should be done at the usual place, in order to avoid adhesions, that are sure to be formed near the wound. Foreign bodies existing in the chest, add greatly to the danger of exhausting suppuration, although patients do recover from balls, pieces of linen, and other materials encysted in the lung and pleural cavity. If any foreign body is detected, it should, if possible, be removed, and, if necessary, a part of the rib may be sawn away; if necessary to get at it with regard to all penetrating wounds of the chest, they should be closed after the clots and foreign bodies are removed. After wounds of the chest, there is always a constant susceptibility to inflammation from slight causes, so that the patient should be cautious to avoid over-fatigue, intemperance and atmospheric vicissitudes.

Wounds of the heart generally prove fatal from the hemorrhage. Numerous cases are recorded, in which musket wounds of this organ



have healed both in man and in animals, without any ill effects remaining. Both the diagnosis and prognosis are extremely doubtful. The only available treatment is to prevent hemorrhage, by restraining the circulation as much as possible, both by hemastasis and arterial sedatives, so that the blood may coagulate in the wound, and become adherent and organized.

## EMPHYSEMA.

There are two varieties of emphysema; *one* consists essentially of enlargement of the air-cells, atrophy of their walls and obliteration of their vessels; this is called *vesicular*, or *pulmonary emphysema*.

The other is generally caused by a wound or injury of the thorax, which has affected the lungs, in which case there is an infiltration of air into the inter-cellular areolar tissue, or into the sub-pleural areolar tissues, and from thence passes over the body. Both forms give rise to habitual shortness of breath with great difficulty of breathing, resembling asthma. Emphysema is marked by an evident cracking noise, elasticity upon pressure, difficulty of breathing, oppression and anxiety. The skin over the enlarged part is tense, elastic and crepitating.

Vesicular emphysema may affect one lung or both, or a part of each, especially the anterior edges.

The prominent symptom of this affection is dyspnoea, which is much increased upon exertion, cough, expectoration of frothy sputa, a dusky appearance of the countenance, weak voice, stooping gait, loss of flesh and strength, constipation, weak, slow pulse, and diminished respirations.

*External signs.*—The thorax, locally and generally, appears unnaturally convex and prominent. The intercostal spaces are widened, but depressed. The inspiratory efforts are evidently increased.

*Percussion.*—The sound is morbidly clear, but not tympanitic, often extending to the lowest regions of the chest, over the pericardial region and the postero-inferior portion of the right side. It is not rendered clearer by a deep inspiration. When the disease is limited to one lung, the morbid clearness of sound may be detected under the sternum, and even beyond it. If emphysema is recent and very partial, the preceding indications may be absent.

*Auscultation.*—The inspiratory murmur is extremely feeble or suppressed; it is sometimes combined with, or replaced by, a superficial, dry crepitation, or various bronchial rhonchi.

The *expiration*, which is more frequently audible, is prolonged, laborious and wheezing.

*Effects on the adjacent organs.*—The heart may be pushed downwards, descending as low as the tenth rib. The diaphragm and abdominal organs are, in severe cases, depressed, as we have seen in cases of effusion into the pleura.

*Treatment.*—We can only attempt to give relief by rest, warm clothing, attention to the general health, and by the use of anodynes

and anti-spasmodics. Stramonium, belladonna, camphor, chloroform, might be tried. A warm climate is very beneficial.

In the interlobular emphysema, the only treatment required will be that proper for the injury, and the control of the attendant inflammation and fever.

This form is frequently produced by the sudden rupture of the air-cells from some violent strain or effort. Hence, it may be caused by straining, violent fits of coughing. If it is extensive, it may at once give rise to fatal asphyxia.

## DROPSY.

Dropsy is but a mere symptom of some other affection. Its proximate cause consists in an inflammation, congestion, or exalted action of the capillary extremities of the arterial vessels of the serous and cellular membranes, and a torpor or inactivity of the venous absorbents of the same parts. The three principal and general causes of dropsy are, diseases of the *heart*, lungs; *liver*, skin; and *kidneys*. We may have it from debility, mechanical injuries, abuse of drugs; stimulating drinks, &c. In every case of dropsy, there are two simultaneous morbid conditions present, namely, increased exhalation and decreased absorption; and, that although irritation and congestion of the exhalents are generally indispensable conditions to this morbid action, yet that effusion may result in certain cases, simply from an alteration in the character of the blood by endosmosis.

Dropsies are acute or chronic, primitive or secondary, simple or complicated; and the character of the effusion is dependent upon the age, sex, and constitution of the patient, and the nature of each particular case.

Generally, the fluid is composed of albuminous matter, dissolved in more or less water, with different phosphates or carbonates. The purulent, bloody, saccharine, hydated. Much light is thrown upon effusion is subject to variations, sometimes the liquid is brown, white, the subject, both the nature and causes of the disease, by an examination of the urine. For instance, in general anasarca, if the urine coagulates with heat and nitric acid, Bright's disease of the kidneys may be suspected, &c.

Our prognosis must depend on the cause and nature of each particular case. Simple serous dropsies, with no complication and disorganization of any of the important organs, are, for the most part, curable, but if the effusion has arisen from an organic affection of a vital organ, as the heart, liver, lungs or kidneys, or from some incurable obstructions in the veins, our prognosis must be unfavorable; but, as recoveries often do take place in patients of naturally vigorous constitutions, of strong vital tenacity, we must hope for the best.

Dropsy may be classed under the following species:

*Anasarca, ascites, hydrothorax, hydrocephalus, ovarian dropsy, hydrocele.*

ANASARCA.—Cellular dropsy is used to designate that variety of dropsical effusion which takes place from the exhalants of the subcu-

taneous cellular tissue. It usually manifests itself in the extremities; the tumefaction is usually soft, doughy, inelastic, pitting on pressure, and the skin is white, shining, and below the medium temperature. Anasarca is not usually attended with much constitutional disturbance, or with painful symptoms. There are present, usually, coldness of the surface, diminished secretion of urine and perspiration. The countenance is pale and sallow, and the general appearance is cachectic. The effusion may continue to increase until the affected parts become enormously distended, and finally give way.

*Causes.*—Scarlatina, measles, consumption, chlorosis, diseases of the heart, kidneys, mercury, &c.

*ASCITES.*—Abdominal dropsy may arise suddenly, in consequence of acute peritoneal inflammation, and may be attended with the ordinary symptoms of an inflammatory affection, or it may make its appearance in a gradual, imperceptible manner, unattended by any notable constitutional disturbance. In an attack of peritonitis, there is increased exhalation from the inflamed serous vessels from the beginning of the attack, and so long as the system under the exalted action incident upon the inflammatory action, the venous absorbents dispose of the superabundant serum; but, after the active symptoms have subsided, a corresponding depression exists in all parts of the system, and, from the low grade of inflammation prevailing, there is a preternatural effusion of serum. If the constitution is vigorous, the absorbents continue to remove the exhalation as fast as formed; but in the feeble, delicate or scrofulous subjects, the function of absorption often languishes, the equilibrium between the exhaling and absorbing functions is destroyed, and ascites is the result.

The characteristic symptoms of abdominal dropsy are, gradual enlargement of the abdomen, first observed in the epigastric region, and afterwards over the whole abdomen; difficulty of breathing on taking exercise; distinct fluctuation on percussion; sallow, dry skin; scanty secretion of high-colored, sedimentous urine; foul tongue; impaired appetite; constipation or diarrhœa; a sensation of weight or stiffness; languor; debility. It is impossible to mistake ascites for any other affection, as pregnancy, tympanitis, &c. In ascites, the situation of the swelling, the fluctuation on percussion, the suppression of urine, dry skin, the history of the case, marks the nature of the complaint.

*Causes.*—The most common causes of ascites are peritoneal inflammation, affections of the liver, abuse of intoxicating drinks, venous obstructions, debility, loss of blood, abuse of drugs.

*Prognosis.*—This will depend on the age, temperament, constitution impaired by disease or excess, whether there is any incurable affection of the liver or other vital organ, &c., it will be unfavorable. If it occur in the young or robust, our prognosis will be more favorable.

*HYDROTHORAX.*—Dropsy of the chest is either idiopathic or symptomatic of some other disease. The most common source of the affection is as a complication of organic disease of the heart. Dropsy of the heart generally co-exists with hydrothorax, also a fruitful cause is protracted pleuritic inflammation. The symptoms are most distressing during the night, after the patient has remained in the recumbent



position. The breathing becomes rapid, laborious, sighing, sudden starting during sleep, anxious, distressed condition of countenance, face pallid and wax-like, scanty secretion of urine, puffiness of the face and extremities, fullness of the chest, dull sound on percussion, pulse very irregular, dyspnœa from the slightest exercise.

**OVARIAN DROPSY.**—In this form of dropsy the effusion takes place from the internal face of the membrane which incloses the ovarium. It first appears in the iliac region, in the form of a small, elastic tumor, which is neither painful, nor does it cause inconvenience, until it attains some size, when it begins to encroach upon important organs, as the bladder, blood-vessels, &c., and then we have difficulty in urinating, disturbance of the stomach, dyspnœa, colicky pains in the abdomen, œdema of the feet, ankles. The tumor may be stationary for a life-time, and its contents may be very various, being sometimes serous, albuminous, purulent, sebaceous, fatty, or composed of organized substances.

The location of the tumor, the absence of pain, and, if large enough, fluctuation can be detected.

*Treatment of Dropsy.*—The first indication in the cure consists in removing, as far as possible, the cause of the dropsy; to enforce the most thorough hygiene, pure air, moderate exercise, an agreeable state of mind, a light, nutritious diet, warm clothing, flannel next the skin; a change of location, a sea voyage, or mountain air, are all powerful auxiliaries in the treatment.

If dropsy depends upon some incurable affection of the heart, liver or kidneys, we can palliate if we cannot cure, and protract the patient's life; an avoidance of all causes that tend to aggravate the primary source of the disease, such as physical exertion, violent emotions and passions. One great point to be aimed at, in the treatment of all cases, is to endeavor to change the morbid condition upon which the dropsy depends. This is best accomplished by improving the quality of the blood, and raising it to a high standard; by promoting the absorption and elimination of effused fluid; by giving remedies of an alterative character. Our most valuable remedies in the treatment of dropsical effusions, are—*podophyllin*, *nitrate* and *bi-tartrate of potassa*, *acetate* and *citrate potassa*, *digitalis*, *cinchona*, *colchicum*, *elaterin*, *dulcamara*, *barosmin*, *apocynin*, *chimaphilin*, *jalapin*, *eupatorin per*, *irisin*, *iodide potass*, *gold*, *cannabis ind.*, *uva ursi*, *rumex*, *alnus*, *corydalis*, *sulphur*, *chlorate potassa*.

The first point to be obtained is to get the skin, kidneys and bowels in working order. Baths, or sponging with the alkaline wash; if the skin is deficient in action, a sponge-bath of dilute tincture of capsicum. Before resorting to diuretics and cathartics, get free secretions from the skin, and then give the C. powder of jalap and senna, or, *R.*—*Podophyllum*, grs. xxx; *nitrate potassa*, ʒi; *bi-tartrate potassa*, ʒii; *digitalin*, gr. i.—*M.* Make ten powders; one morning and night. Or the fluid extract eupatorin per. might be tried.

If there is any disturbance of the alimentary canal, if the tongue is coated, appetite impaired, the occasional use of an emetic will be very



beneficial. Following this, tonics, as hydrastin, wine bitters, cinchona, &c., &c.

I have found the following excellent: R.—Gin, Oss; bi-tartrate potassa, sulphur sub., āā ʒi.—M. A tablespoonful thrice daily.

In dropsy from scarlatina, iron and nitro-muriatic acid; in ascites, with induration or scirrhus of the liver, acid fluorie, digitalis, nuxvomica, lycopodium.

*Chlorate potassa* is a tonic, alterative blood depurent, and seems to possess wonderful power in effusions. The elder bark, in decoction and extract, is often remarkably efficacious. Each case must be treated upon general principles, and the remedies selected with a view of meeting the indications.

### PERICARDITIS.

Affections of the heart, more especially inflammation of the pericardium, are very common—not quite so common in the young as in the adult.

Pericarditis frequently arises from cold, injuries, contaminated blood, produced by disease of the kidneys, the poison of scarlatina or diphtheria, measles or rheumatism. Its most frequent occurrence is in association with rheumatism. The symptoms are the same in all ages: pain in the region of the heart, increased by inspiration, by pressure, often darting to the shoulder and down the arm; palpitation, dry cough, hurried respiration; pain on lying on the left side; restlessness, anxiety; intermittent pulse, ranging about one hundred and twenty; the motions of the heart are tumultuous, perceptible at a distance from the patient; frequent noises in the ears, giddiness. As the disease advances, there is extreme debility, suffocative paroxysms, tendency to syncope, and œdema of the face and extremities. In the adult, these symptoms are seldom collectively present in any individual case; in the young, they are often marked by many circumstances.

The physical signs are of great importance; of these there are three prominent ones that demand our attention:

1st.—The earliest signs observed are, increased intensity of the natural sounds, resulting from irritation propagated to the muscular tissue of the heart; at the beginning of inflammation of its investing membrane, the ventricles contract with great force, giving us a loud systolic *bellows-murmur*, with the sounds louder, the impulse stronger.

2d.—Extension of dullness over the heart, resulting from liquid effusion. Dullness is not only greater, but greater in extent beyond the normal limit; as a result, we have signs of pressure, excitement, weakness or paralysis, in consequence of the intervening fluid, and the impulse is scarcely perceptible.

3d.—Friction sounds, attended with, or preceded by, valvular murmurs. This friction sound is caused by the rubbing of the inflamed and roughened surfaces upon each other. This sound is only heard early in the disease, before the surfaces of the pericardium are separated by the effusion of fluid. When effusion takes place, the surfaces

are either separated by fluid or become adherent, consequently the sound disappears.

**FIRST PERIOD.**—*Stage of inflammation.*—*Exterior*—The action of the heart is generally evident to the eye, and may be felt by the hand. There is soreness to the touch over the corresponding intercostal spaces, and over a small surface in the epigastric region, when the pressure is directed upwards, towards the pericardium.

*Percussion* is usually natural, but it may indicate a slight increase of dullness when the heart is strongly congested.

*Auscultation.*—The cardiac movements are *frequent*, abrupt, jerking, tumultuous; often irregular and intermittent.

The pulse presents corresponding characters; in severe cases it may be very weak, while the action of the heart is feeble but tumultuous. A bellows sound is frequently present, but it is not characteristic of this stage when uncomplicated.

**SECOND PERIOD.**—*Effusion of lymph.*—*Percussion* is negative as before, or very slightly affected.

*Auscultation.*—In addition to the preceding symptoms, we have one or more varieties of the rubbing or friction sounds, resembling the rustling of bank paper or parchment; or presenting a sawing, rasping, or bellows character. In some comparatively rare cases, we detect a sound like the creaking of a new saddle when riding. This last is, perhaps, pathognomonic of effused lymph.

*Differential diagnosis.*—To distinguish these phenomena from the consequences of valvular disease, we must pay attention to the following particulars:—In pericarditis, the sounds are superficial, and sudden in their appearance; they accompany, with few exceptions, *both* sounds of the heart, but are usually louder during the systole. They are limited to the pericardial region; while the natural sounds of the heart, especially the second, can be detected beyond the locality of the abnormal noises, which are also not transmitted through the large arteries. Lastly, the effects of pericarditic inflammation are rapidly modified by treatment. The gradual extinction of the sounds indicates either absorption of the lymph, or, what is more common, the formation of adhesions, or the effusion of fluid; the distinguishing *signs* of both these terminations, we shall shortly detail.

*Remarks.*—It is advisable to examine the effect produced upon the sounds by the patient's holding his breath, since they may occasionally depend on adjacent pleural inflammation. In the latter case, their temporary cessation and synchronism, with the respiratory movements, would enable us to discriminate.

**THIRD STAGE.**—*Effusion of fluid.*—*Exterior.*—The heart's action can neither be seen nor very distinctly felt. The intercostal spaces are more filled up, and the pericardial region, (principally in chronic and extreme cases,) is convex and prominent. We must distinguish the elevation depending upon the ribs, from the local œdematous swelling sometimes observed.

*Percussion.*—The loss of sound extends over a larger space than natural, and is proportionate to the quantity of fluid, increasing especially under the sternum, and in a vertical more than in a transverse

direction. If we carefully limit the line of dullness when the patient is lying down, and then percuss the same region when he is sitting up and leaning forward, or strongly inclining to one side, it will be found to vary by *change of position*. When the effusion is moderate, its recognition is facilitated by percussing the patient when leaning forward. The loss of sound may, in extreme cases, occupy the inferior third, or even half, of the anterior part of the left side.

*Auscultation*.—There is no impulse transmitted to the ear, or it is only occasional and undulatory. The sounds are distant, obscure, and tumultuous; and the rhythm is usually irregular. The abnormal sounds are very feeble, or absent, but, with the impulse, may sometimes be rendered louder and stronger, by a change of posture, calculated to bring the heart into contact with the parietes.

*Prognosis*.—Pericarditis is always a dangerous disease, very much so, when the morbid action is acute or general, or when it occurs in the scrofulous, or when it supervenes upon a severe attack of some disease. The endocarditis, which frequently accompanies it, produces mischief to the valves of the heart. It may terminate fatally in a few days, but more frequently it yields to appropriate treatment, and terminates in apparent recovery. Pericardial adhesions occasion other structural changes in the heart sooner or later to develop themselves.

Endocarditis and carditis give rise to a sense of oppression, uneasiness at the cardiac region, slight fevers, small, feeble, and intermittent pulse, great anxiety, cold sweats, cough, great difficulty of breathing, jactitation and syncope. In either of these affections the action of the heart is excessively violent; a *vibratory* thrill is felt by the hand, there is increased dullness, but the beat of the heart is superficial, instead of remote and distinct, as in pericarditis. A *bellows-murmur* is a constant characteristic phenomena of endocarditis. Its terminations are usually permanent, valvular disease, followed by implication of the heart's substance, with a complete train of consequence, as anasarca, &c.

*Treatment*.—In no diseases are the arterial sedatives used with such marked benefit. Extended experience has demonstrated their utility, so that, at the commencement of the disease, they should be given, as veratrum, aconite, digitalis, combined with the tincture of macrotys, in sufficient quantity to control the action of the heart. Nothing seems more certain than the above remedies; they reduce, with great rapidity, the number of contractions, and, as it were, tone and strengthen; they must be watched,—the medicine discontinued gradually as the heart becomes more regular, the impulse more normal, the urgent symptoms controlled. Dry cupping over the region of the heart, and then resort to the hot or vapor-bath. Then I give hyosciamin and asclepin, to give relief to the patient's sufferings. The dose which will be needed will vary with the severity of the pain and restlessness; small doses at first, and gradually increase. The bathing should be continued. An effort then should be made to bring the system under some powerful alterative, as irisin, menisperm and iodide of potassium, keeping up the action of the arterial sedatives. Counter-irrita-

tion over the heart, by cantharidal collodion, over which the irritating plaster; the same on the spine, opposite; the occasional use of the mustard foot-bath, keeping up active sponging of the entire surface every three hours. If there be much fluid effusion, the following answers a good purpose: *R*.—Bi-tartrate potassa, grs. xxx; nitrate potassa, grs. iii; podophyllum, pulv., grs. ii.—*M*. Every three hours. The great emunctories must be free, the heart relieved by getting a determination of blood to the other parts of the body, and keeping down irritation. Nourishment should be light; mild, cooling drinks, diuretic beverages, and, if the powers of nature flag, stimulants should be perseveringly given. There must be perfect rest of mind and body, and all possible causes of excitement should be carefully excluded. As a special remedy, in the stage of convalescence, the cactus grand, in alternation with the digitalis, are very appropriate and highly useful. The treatment is the same for carditis as endocarditis.

### ENFEEBLED ACTION OF THE HEART.

This is usually due to two causes: either an anemic condition of the blood, from whatever cause, or from want of proper stamina. The indications are usually very plain. If it depends on anemia, tonics, iron, phosphates, good diet, &c., making every effort to restore the normal condition of the blood. If it depends upon the loss of nervous energy, quinine, phosphorus, iron, nux vomica, cactus, aconite, counter-irritation along the spine.

### IRREGULAR ACTION OF THE HEART.

This is best treated by removing all sources of irritation, by regulating the secretions, by restraining all sorts of mental or physical excitement, by the application of counter-irritation over the spine, and by the internal use of a formula. *R*.—Tincture aconite, veratrum, cactus, nux vomica, aa ʒi; glycerine, ʒiii.—*M*. Half a teaspoonful every four hours; or, *R*.—Tincture aconite, digitalis and gelsemin, in the same proportions.

Debility should be guarded against by iron, cinchona, nux vomica, phosphorus, hydrastin, &c.

### EXCITED ACTION OF THE HEART.

The principal pathological conditions which give rise to this, are the following: a change in the quantity or quality of the blood, or irritability of the muscular fibres of the heart, or irritation of some part of the nervous system. The most prominent symptoms are, palpitation on the least emotion; the action of the heart is strong, labored; the natural sounds increased in intensity, sometimes audible without putting the ear to the chest. The impulse of the heart against the parietes of the thorax can be noticed by the eye; sense of weight in



the region of the heart, pain, difficult respiration, sensation of smothering, and sometimes a feeling of impending dissolution.

*Diagnosis.*—It is to be distinguished from organic disease by the area of dullness on percussion, by the morbid or adventitious sounds, by the incessant dyspnœa, nervous congestion, bloated countenance, dropsical effusions.

*Treatment.*—If due to anemia, measures must be resorted to to improve the quantity and quality of the blood. For this purpose, stimulate the skin, kidneys, liver; then tonics, nutritious food, exercise in the open air. If the patient is seen during an attack, either the tincture of lobelia or gelseminum, should be given in sufficient doses. These are powerful therapeutic agents, controlling the action of the heart and arterial system, lowering the force of the pulse, depressing the vascular system, gradually increasing the urinary secretion, and producing diaphoresis. They should be given in small doses, in order to get the secondary action of the remedy, so as not to impair muscular or nerve-force.

If we have irritability of the muscular fibre of the heart, or irritation from any cause, as sexual excesses, masturbation, &c., with tenderness over the cervical region, our treatment then would be elixir cinchona phos. et ferri, alternated with gelsemin, aconite, lobelia or veratrum, in combination, or otherwise, with the irritating plaster applied over the region of the heart. If these remedies fail, then try cannabis indica, digitalis, apocynum, &c. There is a remedy that has remarkable power in these cases, and that is the kalmia-latifolia; it ranks next to the digitalis.

## NEURALGIA OF THE HEART.

This disease is rare; but when it occurs, it is usually preceded by a feeling of tension, and dull aching about the heart, with occasional sharp, piercing, neuralgic pains. When fully developed, lancinating and radiating to the left arm, neck and viscera. The paroxysms are instantaneous in their accession, intermittent, like all diseases of a nervous character. During the attack, the action of the heart is accelerated, sometimes slow and labored. The causes are the same as neuralgia generally.

*Treatment.*—For the relief of the paroxysms, an excellent prescription is the following: *R.*—Tinctures lobelia, macrotys, gelseminum, āā ʒi; aqua, dist., ʒii.—*M.* A teaspoonful every ten minutes, till relieved. Alternate this with *R.*—Muriate ammonia, ʒi; aqua camphor, ʒii.—*M.* Dose, a teaspoonful. These two formulæ are excellent.

The treatment for a radical cure varies according to the condition of the patient, and the peculiar character of the disease.

If they occur with regularity, and malaria is suspected, quinine, iron and nux vomica, and the general treatment of malaria; if anemia be the cause, then iron and vegetable tonics; if nervous prostration, then cinchona, hydrastin, phosphorus, &c., is beneficial; if there is tenderness of the spinal column, apply the irritating plaster.

## CYANOSIS.

This is a term applied to a condition characterized by blue or purplish discoloration of the skin, arising generally in connection with some malformation of the heart.

The chief malformations are: perforation of the foramen ovale, allowing a passage of the blood between the two auricles; abnormal apertures in some part of the septum of the auricles, or of the ventricles; origin of the aorta, and pulmonary artery, from a single ventricle; transpositions of the origins of the large vessels from the heart; extreme contraction of the pulmonary artery.

Some pathologists refer it solely to nervous congestion; others regard the intermixture of the two currents of blood as the cause, but all cases can be classed under malformation of the heart and its appendages. In addition to the discoloration of the skin, patients usually suffer from coldness of the body, palpitation, fits of dyspnœa, syncope on the least excitement, congestion of internal organs, dropsy.

The discoloration is generally increased by everything that excites the heart's action; while, if there be no valvular lesion, the sounds of the heart will be found normal.

The treatment is simply palliative, the organic cause being irremediable. A very nourishing diet, warm clothing, the avoidance of fatigue or undue mental excitement, and residence in a pure, mild atmosphere, will give the sufferers from cyanosis every chance of life that can be afforded them.

## ANGINA PECTORIS.

An acute constricting pain at the lower end of the sternum, inclining rather on the left side, and extending up into the left arm, accompanied with great anxiety, violent palpitations of the heart, laborious breathing, and a sense of suffocation, are the characteristic symptoms of this disease.

It is found to attack men much more frequently than women, particularly those who have short necks, who are inclined to corpulency, and who, at the same time, lead an inactive and sedentary life; and also those of a gouty or rheumatic diathesis.

Although it is sometimes met with in persons under the age of twenty, still it more frequently occurs in those who are between forty and fifty.

In slight cases, and in the first stage of the disorder, the fit comes on by going up hill, up stairs, or by walking at a quick pace after a hearty meal; but, as the disease advances, or becomes more violent, the paroxysms are apt to be excited by certain passions of the mind; by slow walking, by riding on horseback, or in a carriage; or by sneezing, coughing, speaking, or straining at stool. In some cases, they attack the patient from two to four o'clock in the morning, or while sitting or standing, without any previous exertion or obvious cause. On a sudden he is seized with an acute pain in the breast, or rather at the extremity of the sternum, inclining to the left side, and

extending up into the arm as far as the insertion of the deltoid muscle, accompanied by a sense of suffocation, great anxiety, and an idea that its continuance or increase would certainly be fatal.

In the first stage of the disease, the uneasy sensation at the end of the sternum, with the other unpleasant symptoms which seemed to threaten a total suspension of life by a perseveranee in exertion, usually go off upon the person standing still, or turning from the wind; but, in a more advanced stage, they do not so readily recede, and paroxysms are much more violent. During the fit the pulse sinks in a greater degree, and becomes irregular, the face and extremities are pale, and bathed in a cold sweat, and for a while the patient is, perhaps, deprived of the powers of sense and voluntary motion. Sometimes the stomach is morbidly affected, becomes unusually irritable, and rejects whatever is swallowed. The disease having recurred more or less frequently during the space of some years, a violent attack at last puts a sudden period to his existence. He dies after having suffered all the agonies of dissolution; for this is a complaint in which, during the fit, there are the most overwhelming sensations and apprehensions of instant death.

Angina pectoris may proceed from some organic disease of the heart, as ossification of the coronary arteries, or of the valves of the heart, dilatation or hypertrophy of the heart, an accumulation of fat about the organ; in some cases it is purely sympathetic, and not connected with any structural change or disorder of the heart.

In some cases, the nerves which supply the heart are implicated in such a manner that they induce slight exciting causes, as errors in diet, mental emotion.

*Diagnosis.*—It may be distinguished from asthma by the acute and peculiar pain in the sternum and left arm; the paroxysms of asthma coming on in the evening or during the night, by heavy dyspnoea, wheezing cough, relieved by relaxants and expectoration, fresh air, and subsiding towards the morning. The dyspnoea of asthma depends on the spasmodic contraction of the muscular fibres and their ramifications. The neuralgic character of the pain, its severity, form its chief characteristics.

*Prognosis.*—If angina pectoris is not dependent on organic disease, but essentially a nervous disease—a disease of depression—recovery may be complete; if complicated with rheumatism or gout, it may leave behind it a predisposition to cardiac disease; if the case is inveterate from neglect, or organic disease, if there is effusion within the thorax or œdema of the extremities, our prognosis will be unfavorable.

*Treatment.*—Place the patient in the reclining posture, if seen during the paroxysm; keep him quiet; apply warmth and friction if the circulation is impaired, and then put him upon small doses of lobelia. There is no agent so prompt as this in affording relief; a drop or two of the oil triturated in sugar is a most convenient form for exhibition. At the same, dry cupping between the shoulders is always safe, always effective; as it is pre-eminently revulsive, without expending the vital fluid.

In the selection of remedies, they must be suited to the stage and

character of the disease. If the cause consists in an abnormal condition of the *par vagum*, or of the cardiac nerves, which renders them liable to be excited from trivial causes, medicines may be given with hopes of success. The most reliable remedies are, lobelia, gelsemin, aconite, digitalis, nux vomica, rhus radicans, veratrum, epec.

The C. tincture of cajeput, gelsemin, anti-spasmodic tincture, acting mildly but efficiently on the secretions. When the attack is warded off, put the patient upon a thorough alterative course, taking care to improve the digestive organs, removing all exciting causes.

## ORGANIC DISEASES OF THE HEART.

Structural disease of the heart is extremely common; so much so, that a large proportion of cases cause merely impaired health, and death is induced by derangements of the circulation, which usually depend on organic change. The principal organic lesions, are hypertrophy, attenuation, structural alteration of the muscular walls of the heart, on which its contractile power depends, valvular derangements, ossification of the valves, &c., which interfere with the perfect working of the heart.

**SIMPLE HYPERTROPHY OF THE HEART.**—*Exterior.*—In cases of long standing, the præcordial region is generally prominent. The heart's pulsations are visible over a greater extent than natural, and occasion an undulatory movement in the epigastrium. The hand is rudely repelled and suddenly raised from the chest, and we are sensible of a vibration from the shock, which may be sometimes felt posteriorly.

*Percussion.*—The dull sound is more extensive than natural, and with increased resistance to the finger.

*Auscultation.*—There is a permanent augmentation of the force and extent of the heart's action, which raises the hand or pleximeter, and clearly conveys the idea of greater power; there is no increase of frequency, and the rhythm is regular.

The *first* sound is duller, smothered, and prolonged; and, in extreme cases, may be replaced by a confused murmur. It is not transmitted to a distance over the chest.

The *second* sound is at first louder, but as the thickness of the ventricles increases, it becomes weaker, and is inaudible over the præcordial region, while it may be detected under the upper third of the sternum, in the carotid and subclavian arteries, and for a short distance down the back. The pulse is generally strong, full, and hard.

**CONCENTRIC HYPERTROPHY OF THE HEART.**—*Percussion* detects no enlargement of the organ, but a very resisting and circumscribed dullness.

*Auscultation.*—The impulse is strong, but limited in extent; only slightly raising the hand, and soon lost beyond the præcordial region. The *first* sound is extremely dull, prolonged, and occasionally not unlike the respiratory murmur. The *diastolic* sound is very feeble over the heart itself, but may be discovered under the sternum, and in the larger vessels.

**SIMPLE DILATATION OF THE HEART.**—*Externally*, the action of the



heart is not visible, and no impulse is conveyed to the hand. The præcordial region is natural.

*Percussion.*—There is a loss of resonance over a larger surface than usual, but the dullness is much less intense and less resisting than what accompanies hypertrophy.

*Auscultation.*—The action of the heart is only slightly felt, and at once gives the impression of its diminished power. The impulse is weaker, brisker, and lower than usual.

The *first* sound is clearer and shorter; becoming, in advanced cases, flapping and valvular, like the second, and even inaudible when the parietes are much enfeebled.

The *second* sound is more extensively heard in the præcordial region than usual, but is not altered in its character, though it is weak and distant in extreme cases. Both sounds are widely transmitted over the thorax, and are not much fainter at a distance from their point of origin.

ATROPHY, OR DIMINUTION OF THE HEART.—*Externally.*—The organ can neither be seen or felt.

*Percussion.*—The præcordial region is quite clear, or nearly so, and the respiration is distinctly heard.

*Auscultation.*—Both the movements and sounds are extremely feeble and distant.

The *first* sound is very valvular and clear, and, in extreme cases, inaudible. The pulse is small, thready, and very soft, or rather hard, in proportion as the cavity is large or small.

HYPERTROPHY WITH DILATATION.—*Externally.*—The pulsations can be seen and felt over a larger space, and the apex is more to the left and lower down than natural. The impulse is less steady, but, at moments, more violent than what accompanies simple hypertrophy, or more undulating and less forcible when dilatation predominates.

*Percussion.*—There is more distinct evidence of enlargement, the sound being extremely dull.

*Auscultation.*—The impulse is often violent but irregular; the heart at times suddenly receding from the ribs and sinking down into the chest, while, in other cases, its contact with the parietes seems successive and gradual. In extreme cases it produces the sensation of a large mass of flesh rolling, or irregularly revolving beneath the pleximeter.

The *first* sound is louder, and more diffused over the chest. It, of course, varies, as well as the other symptoms, with the relative excess of hypertrophy or dilatation.

The *second* sound is often obscure over the heart, but is very evident at a distance, and in the larger vessels. The pulse is full, strong and vibrating, and the beatings of the arteries are very distinct. The shock of the heart's action is often transmitted to the whole person of the patient, and to the bed on which he is lying.

*Differential diagnosis between diseases of the right and left cavities of the heart.*

When the *left* ventricle is affected, the pulsation, impulse, loss of sound, and præcordial prominence, are most intense over the cartilages

of the fifth, sixth, seventh or eighth ribs, to the left of the sternum. The sounds are most distinct under the left clavicle, and in the corresponding side, than elsewhere; the pulse is also modified, as well as the arterial circulation generally.

If the *right* ventricle is diseased, the symptoms are most strongly marked under the sternum, and beneath the cartilages to the right of that bone, as well as in the epigastrium. The morbid sounds are most distinct throughout the right thorax; the venous system is more or less obstructed, (evinced by congestion and pulsation of the jugular and other veins,) while we have the negative evidence in favor of the healthy state of the left ventricle.

*Remarks.*—It is almost unnecessary to observe that, in the majority of cases, *both sides* are, to a certain extent, involved, but, by attention to the preceding particulars, and to the following precautions, we shall seldom deviate widely from the truth.

*Precautions.*—In estimating the amount of impulse or dullness on percussion, as well as the distance over which the sounds of the heart are audible, it is particularly necessary to make allowance for the age of the patient; for the size of the thorax, especially its antero-posterior diameter; for the state of the parietes; the existence of malformation; for the healthy or morbid condition of the lungs; and for the fullness or relaxation of the abdominal cavity. We must also remember that phthisis, and other diseases involving increased density of the pulmonary organs, as also aneurisms of the descending aorta, not unfrequently indirectly augment the effects of the heart's impulse, and the extent of dullness on percussion over the præcordial region, both from the superior conducting power consequent upon increased solidity, and from the organ itself being pushed into closer contact with the parietes. The advice of the immortal Laennec may be profitably remembered: "examine closely, carefully and repeatedly, before you conclude as to the nature of the disease."

**DISPLACEMENT OF THE HEART.**—The diagnosis is founded upon discovering the heart in a situation more or less removed from its usual limits. With the exception of cases of transposition, all deviations from the natural situation of this organ are to be regarded as indications of some more serious organic lesion. Pleurisy, aneurism, enlarged liver, abdominal tumors, emphysema, or increased dimensions of the organ itself, are what we should principally suspect.

**FALSE CONSECUTIVE CARDIAC ANEURISM.**—It cannot be recognized before death. Some, however, think we should find a dull sound in the lower and anterior part of the left side; that the pulsations would vary over the base and apex of the heart. Over the latter, they would be full and vibratory, with a bellows-murmur, corresponding to the affected point. Happily the lesion is too rare to render the diagnosis important.

**RUPTURE OF THE HEART.**—It is evident that the physical signs would vary with the part lacerated. If the septum was ruptured, the symptoms might be simply those of cyanosis. If the outer walls yielded, we would have the ordinary signs of pericardial effusion; and

if a valve was perforated or detached, some modification of the bellows-murmur.

**FIBRINOUS CONCRETIONS, OR POLYPI IN THE HEART.**—They may be suspected, when, in the course of an acute or chronic affection of this organ, or at the close of chronic diseases in general, (particularly those of the lungs, the heart's action becomes suddenly tumultuous, obscure, and accompanied with a soft bellows-murmur; while the general symptoms indicate the effects of obstructed circulation. The right cavities are most frequently affected.

**SIGNS OF DISEASES OF THE CARDIAC ORIFICES AND VALVES.**—We may premise, as a general remark, that the bellows, filing, sawing, and musical, or whistling murmurs, are all capable of being produced by various degrees of contraction, or roughness of the orifices and valves. When, therefore, we speak of a *bellows-sound*, we include its varieties.

The patient affected with organic disease of the heart, in addition to other bodily sufferings, manifests habitual irritability, and a long chain of diseases, &c., &c. Those afflicted with structural heart disease are liable to hemorrhage, which is a very important symptom, so are dyspeptic symptoms, of which flatulence is the most distressing symptom; and free eructation always mitigates the cardiac distress, by relieving the diaphragm from the upward pressure of gas, which had embarrassed the motions of the heart, dyspnoea and cough.

In these cases we have an impeded and sluggish circulation of blood from the abdominal viscera, which causes congestions of the viscera; the liver is enlarged, its functions are deranged. The circulation in the brain is disturbed; hence, the headache and mental disturbance; one or more chambers of the heart may become thicker and stronger than natural; in other cases the thickening of the muscular in texture is accompanied by corresponding enlargement of the cavity, also constituting hypertrophy with dilatation.

**Causes.**—Some mechanical obstacle prevents the free and thorough exit of the blood from the chamber, or hinders the easy play of the organ. In the one case, there is a gradual yielding of the sides of the affected chamber to the continual and undue pressure of the accumulated blood against them; in the other, there is a striving action of the muscle to overcome the hindrance, counter-balance the obstacle, and thus the muscle, compelled to do extra labor, grows in thickness while performing it. In estimating the nature of the organic disease of this organ, it will always be necessary to bear the following rules in remembrance:

1st. In health, the cardiac dullness on percussion measures about four inches, and any great extent of dullness indicates either the increased size of the organ, or undue distension of the pericardium; an indication of disease, either of the heart or parts around it.

2d. A friction murmur, synchronous with the heart's movements, indicates pericardial or ex-pericardial exudation.

3d. A bellows-murmur with the first sound, heard loudest over the apex, indicates, withal, insufficiency.

4th. A bellows-murmur with the second sound, heard loudest at the base, indicates aortic insufficiency.

5th. A murmur with the second sound loudest at the apex, is very rare, but, when present, it indicates aortic disease; roughness, auricular surface of the mitral valves, or mitral obstruction.

6th. A murmur with the first sound loudest at the base, and propagated in the direction of the large arteries, is more common. It may depend on an altered condition of the blood, as in anemia; or on dilatation, or disease of the aorta itself; or on stricture of the aortic valves.

Hypertrophy may exist independently of valvular disease, but by far the most common is in connection with disease of the valves. In organic diseases of the heart, it is rare that the lesion is confined to one cavity, because, as it advances, it produces increasing embarrassment in the others. As hypertrophy of the left ventricle, in consequence of aortic disease, after a time induces enlargement of the left auricle, this embarrasses the return of the blood from the lungs, causing congestions and derangement of those organs.

### MYOCARDITIS,

Or true inflammation of the substance of the heart, is one of the rarest organic diseases known, and fatty degeneration of the heart one of the most common. This latter is the result of various causes, but particularly where the aortic valves are affected, as well as from a modification in the general condition leading to fatty degeneration. Generally, if the liver and kidneys are fatty, the muscular substance of the heart is fatty also. Indeed, there is no degeneration of texture more common than fatty heart.

*Treatment.*—That the various lesions of the valves are susceptible of being removed by drugs, is one of those notions which the advance of diagnosis and pathology has happily exploded, and which seems now almost generally admitted. All that we can hope to accomplish is, to modify, and, if possible, check the disease. In valvular disease, the strength must be supported, the patient must avoid sudden or great exertion, violent emotions; the diet should be properly regulated, gentle exercise inculcated. Pain, angina, paroxysmal attacks should be relieved by arterial sedatives, and when dropsy appears, we are often able to retard it or delay its advance, by diuretics, diaphoretics, and even hydragogue cathartics, if the patient's strength admits of it. If hypertrophy exists to any great extent, and there is marked difficulty in propelling the blood through the lungs, as is evidenced by the excessive dyspnoea, lividity of the face, irregular action of the heart, dry cupping over the region of the heart is very beneficial. If there is a tendency to faintness, or reason to suspect fatty degeneration, a stimulant should be at hand. The best remedies that we possess in the treatment of organic disease of the heart are, aconite, digitalis, cactus, lobelia, veratrum, scutellarin, cannabis indica, arnica, iodide potass, gold, bryonia, pulsatilla, gelsemin, &c.

*Aconite* is best adapted for those cases where the action of the arteries is rapid, vigorous. When there is pain in the cardiac region, and it is of a constrictive, oppressive or lancinating character; the breath-



ing short, anxious and labored, the pulse rapid and irregular, combine lobelia and veratrum; if the action of the heart is greatly exalted, marked febrile symptoms, the addition of asclepin would be beneficial. Small doses of aconite, with the addition of these others, frequently repeated.

*Cactus grandiflorus* is especially indicated in all cases of organic disease of the heart; it possesses a specific power both over the muscular and nervous tissue of the heart and its appendages. Its best results are to be obtained from it in small doses and frequently repeated. It may be combined with aconite, veratrin, digitalis, and, when we are desirous of depressing the vascular, lobelia might be added.

*Digitalis* is specially indicated in the great proportion of cases of cardiac disease. The special indications for the use of the remedy are well-marked: pains in the region of the heart, often extending to the shoulder and side; pulse very variable; a feeling of anguish, anxiety, despondency and fainting; cold extremities, respiration slow, &c. Its specific sedative power over the sympathetic nerve and cardiac plexus, render it especially adapted to the above symptoms. In rheumatism or gout, the digitalis may be alternated or combined with veratrum, bryonia, asclepin, &c., to meet peculiar indications.

*Gold* increases the secretions, diuresis and diaphoresis. It is proper where we are desirous of producing a change. *Spigelia*, *kalmia-latifolia*, iodide potass, irisin, macrotin, are best adapted to those cases either caused or complicated by the metastasis of the rheumatic poison. Where there is metastasis of the rheumatic poison to the heart, the general treatment of rheumatism should be enforced, to wit: alkalies internally and locally, to neutralize the lactic acid present in the blood; diaphoretics and diuretics, to remove the poison, such a formula as the following: *R*.—Asclepin, eupatorin per., āā grs. iii; sanguinarin, gr. ss; podophyllum, grs. iv; nitrate of potassa, grs. v.—*M*. Repeat every two or three hours.

*Arnica*, combined with some more decided remedy, will prove very serviceable where there is pain and dyspnœa, increased by mental or physical exertion.

In all other particulars, the case should be treated upon general principles, the patient studiously avoiding all predisposing and exciting causes, leading a quiet, temperate life.

**FUNCTIONAL DISORDERS OF THE HEART.**—Functional disorders of the heart are but symptoms of obscure organic disease, of indigestion, weakness of the general system from the alteration of the blood. These disorders may be classed under the following forms: *Angina pectoris*, or spasm of the muscular walls of the heart, causing excruciating pain, and a feeling of sinking difficult to describe. Generally induced by exertion, and usually intimately connected with fatty heart and calcareous degeneration of the coronary valve.

In *chlorosis* and *anemia*, there are palpitations, with a tendency to syncope, accompanied by a continuous buzzing or humming-top murmur. Similar palpitations in sedentary patients or young men; those addicted to masturbation, or afflicted with spermatorrhœa.

In the treatment of these cases, when it is dependent on weakness, cinchona, hydrastin, gold thread, iron, nutrients, exercise, hygiene; if on chlorosis, the different preparations of iron, senecin, trillin, macrotin; if in young men, regulated exercise, suspension from study and old habits, attention to diet, cheerful conversation, and meeting and studying the case in all its concomitant derangements, and, if possible, removing such affections as amenorrhœa, spermatorrhœa, dyspepsia, &c., &c.

### DYSPHAGIA.

Difficulty of deglutition may occur in various forms, as dysphagia from mechanical injuries of the œsophagus, from nervous irritation, from spasmodic constriction of the pharynx, from apoplexy, diphtheria, &c., &c. The difficulty may exist for months as an effect of some of these diseases. The best remedy for this affection will be found in belladonna, nux vomica, rhus radicans, scutellarin, quinine, drosera, cypripedin, aconite.

**MORBID THIRST.**—Thirst is usually a symptom, not a disease itself, and it is only when it is excessive that it is regarded as a manifestation of disease. The desire to drink at reasonable intervals, and in sufficient quantities to supply the body with the necessary amount of fluids, is an accompaniment of health rather than disease. The causes of the development of thirst in an inordinate degree are such as diminish the watery fluid in the blood; when the atmosphere is peculiarly dry; when the body has been losing large quantities of fluid; excessive fatigue, febrile disease.

The remedies of most utility consists of cinchona, dulcamara, lobelia, hydrocyanic acid, &c.

**MORBID APPETITE.**—A disease in which the patient is affected with insatiable and perpetual desire of eating, beyond the wants of the system. It may be attended with average health, but it ultimately leads to plethora, disorder of the secreting functions. It is often a symptom of morbid states of the digestive organs.

*Causes.*—Hereditary predisposition; the habit of eating too much without mastication; chronic debility from obstruction of the mesenteric glands, liver; suppression of chronic eruptions, concentration of vital energy in the stomach; the nerves becoming more sensible, and muscular coats more irritable, leading to increased secretion of gastric juice; this will cause the sensation of extreme hunger; and the food is readily taken into the stomach, rapidly dissolved, and pressed forward into the duodenum. The concentration and expenditure of vital energy is followed by torpor, debility, &c.

*It is usual to begin treatment* by restricting the amount of food, but this can seldom be done, as patients can never be trusted in regulating themselves. Restricting the food and giving alteratives, exercise and constant mental as well as physical employment.

**ABSTINENCE.**—The great power of abstinence renders it important sometimes, in the treatment of disease, especially in gastritis, hepatitis, plethora, apoplexy. If abstinence be necessarily total, as sometimes

happens on board of ship, and in coal mines, the only treatment required is the gradual and cautious administration of nutritious but unirritating food, beginning with bland farinaceous articles, which are easily digested. External warmth, gentle frictions, mild stimulants. The supporting, cheering, invigorating powers of hot coffee is peculiarly serviceable in cases of this kind. Febrile excitement should be controlled by aconite, and any determination to the brain, by belladonna.

**VITIATED OR DEPRAVED APPETITE.**—An appetite for substances, in their nature unfit for food, is common among pregnant, hysterical, and chlorotic females, especially at the age of puberty. This is the result of an altered state of the nerves, or a perverted state of the secretions of the stomach, connected with imperfect action of the digestive organs, uterus, or brain. The treatment must be according to the indications; thus, in a female who craves alkalies, in the form of chalk, there is a deficiency of alkaline principle in the system; and when this want is obviated the morbid appetite ceases. This can easily be done by administering such remedies as cinchona, hydrastin, dulcamara, iron, phosphorus, sulphate of soda, &c.

**CARDIALGIA.**—*Heartburn.*—This term is very inappropriately applied to a pain in the stomach, which is generally a prominent symptom of dyspepsia.

There is a feeling of anxiety, heat more or less violent; some oppression, faintness, inclination to vomit, or an abundant discharge of clear, lymph-like saliva. The pain arises from different causes, as flatus, acrid or rancid substances in the stomach; the irritation of the coats of the stomach from any cause, as worms, acrid food, spices or aromatics, the use of tea, coffee, fermented liquors; rheumatic or tubercular diathesis.

**FLATULENCY.**—Flatus in the stomach and abdomen generally accompanies dyspepsia. It is manifest by abundant formation of gas in the bowels, manifested by tension of the abdomen, rumbling in the bowels, severe pain, accumulation or copious discharge of wind.

*Causes.*—Indigestion, errors of diet, free use of saccharine substances, &c.

*Treatment.*—Careful regulation of the diet; let it be plain, moderate in quantity, and apply some stimulant over the stomach, give small doses of nux vomica, alternated with epec; if there is great weakness, cinchona, gold thread, wine bitters, &c.

**PYROSIS.**—*Water-brash.*—A burning sensation at the pit of the stomach, extending up the fauces, followed by eructation of a thin, colorless liquid, which seems to be forced into the mouth by a kind of reversed action of the stomach.

*Causes.*—It may proceed from some irritation of the stomach itself, or from some organ which can effect it through sympathy. It is a prominent symptom of cancer, or organic disease of the stomach.

In the treatment, nux vomica, cinchona, nitro-muriatic acid, hydrastis, xanthoxylin, &c.

**NAUSEA AND VOMITING.**—*Nausea.*—An inclination to vomit without effecting it; also a disgust of food approaching vomiting. It is an

attendant on various conditions of disordered stomach. It occasions an aversion to food, an increase of saliva, loss of appetite, debility, &c. Vomiting consists in a spasmodic contraction of the diaphragm and abdominal muscles, followed by a rapid discharge of the contents of the stomach.

*Causes.*—Intemperance, indigestible food, every kind of disorder of the stomach, mental emotion, extremes of temperature, fatigue, &c. Vomiting is not the act of the stomach alone; the brain is an important accessory. The irritation of the stomach makes a call upon the brain for the aid of the diaphragm and abdominal muscles, in order to expel its contents; the diaphragm then becomes contracted and fixed, the ribs drawn down, and abdominal muscles drawn inwards, so that the stomach is pressed on all sides by voluntary muscles, which, together with its own contractions, expel the contents. The action of an emetic is analogous; it makes an impression on the sentient extremities of the nerves of the stomach; the sensation is referred to the brain. The natural energies of the brain are diminished by the effects of the emetic—languor, mentally and physically. If the brain, from depression or injury, is unable to transmit its influence to these muscles, and disregards the calls of the stomach, vomiting can only be excited with difficulty, or not at all.

*Treatment.*—If too much food has been taken, vomiting may be regarded as an effort of nature to free the stomach from its overloaded condition, and small doses of lobelia or epec may be given to obtain free evacuations. The remedies should be suited to the symptoms. If we have coldness and prostration, give one of the following every hour: *R.*—Camphor, grs. x; capsicum, grs. xx; oil of peppermint, gtt. iii; morphia, gr. i.—*M.* Make ten powders. If it is the sickness of pregnancy, ipec., oxalate of cerium; if it is bilious, chamomile.

## DYSPEPSIA.

Dyspepsia is an affection of the digestive organs, in which one or more of the several processes by which the aliment is converted into blood are imperfectly performed. It is complicated in its nature, not only involving the stomach but all the organs of the physical and mental organization.

The symptoms are exceedingly various, minutely mingled with almost all the structures and tissues of the body, with an endless chain of sympathies and reflex action.

The most prominent symptoms are, loss of appetite, nausea, languor, aching; tenderness and distension of the epigastrium; acidity, flatulency, eructations, weight and fullness after eating; rapid breathing, pyrosis, vertigo, constipation, sallow complexion, loss of ambition and energy; sad, desponding, dread and apprehension regarding the future; nights restless, disturbed by unpleasant dreams. In an advanced stage, there may be a troublesome cough, with occasional pains in the chest, mucous or muco-purulent expectoration, due from gastric disturbance to the pulmonary tissue.

Dyspepsia from deficient secretion of the gastric juice, with great



sensibility of the nerves of the stomach. In health, the stomach contains no gastric juice, except when food is taken, and, by its contact with the mucous membrane, excites the secreting organs to pour out the gastric fluid in the requisite quantity.

The impression made upon the sense of taste and upon the nerves of the stomach, by food, is transmitted by the nerves to the nerve centres, thence to the digestive organs, upon which devolves the duty of elaborating the gastric juice; if there is any lack of harmony, it may be deficient or vitiated.

The intimate relation existing between the stomach, liver, &c., by reflex action, renders all forms of dyspepsia a complicated disease; but, in all cases, there are the following always present: the natural sensibilities are changed, being either morbidly acute, obtuse, torpid or perverted.

*Symptoms.*—Appetite ravenous, sensibilities whimsical, unpleasant sensations after eating, pain in the stomach and duodenum; *liver* always irregular in its action, generally torpid; tongue furred in the middle and at its root, constricted at its base—if the mucous membrane is highly irritated or inflamed it resembles beef steak; the *eyes* are tinged with bile, exhibiting languor or irritability; the *urine* turbid, scanty, high-colored, depositing a thick or white sediment, sometimes limped or clear; the skin is dry, contracted; occasional partial perspiration, alternated with chilliness, followed by heat, especially of the palms of the hand and soles of the feet; complexion sallow, dark or yellowish, bilious, exhibiting reflex nervous influence of the stomach, liver; *emaciation* is a marked feature where the liver is extensively implicated; the *loss of strength* is proportioned to the degree of nervous irritation in the sentient nerves of the stomach and bowels; the tenderness of the epigastrium is pre-eminent. *Pain* in the stomach varies in degree from a slight uneasiness to the most excruciating gastralgia; *fullness of the epigastrium*, depending upon flatulence or chronic disease of the liver; the *brain* is affected through the reflex action transmitted by the nerves of the stomach, hence the irritability, pain in the head, &c.; *imperfect nutrition* in the process of nutrition, the blood becomes deficient in globules, circulation feeble, extremities cold.

In the nervous system there are two great classes of nerves: those that take their origin from the brain, and those that arise from the spinal marrow, and also those which constitute the ganglionic system of nerves.

The nerves which originate in the brain, transmit sensations to the sensorium, and nervous influence to the voluntary muscles. The nerves which proceed from the spinal marrow regulate the functions of various vital organs, as the stomach, heart, &c.

It can easily be perceived how any stimulus, either of the brain or stomach, leads to impairment, as feebleness of digestion is produced by excessive fatigue, great mental excitement, depressing passions, habitual indulgence, weakness.

The gastric fluid is so much under the influence of the nervous system, that it is only secreted in its perfect state when the nervous

system is in its best possible condition, and the liver, skin, &c., working in harmony. Eating too much, or too highly seasoned food, is exhausting; eating too fast, drinking largely at a meal, are pernicious.

Fermentation of the contents of the stomach, from deficient secretion of gastric juice, is usually due to a failure of vital powers, for, when the gastric juice is deficient in quantity or in quality, fermentation, with acidity, is the result, generating lactic or acetic acid. The causes that give rise to this condition of things are, over-eating, carious teeth, structural disease of the stomach, eating food of improper quality, &c., &c.

*Treatment.*—In every form of dyspepsia, insist upon a well-regulated diet, restricting it to a moderate quantity of nutritious, but easily digested food, avoiding new bread, tough meat, fermented liquors, fatigue or exhaustion, and every kind of food deteriorated in quality, or hard to digest; exercise in the open air should be inculcated, because neglect of this enfeebles the nervous and muscular systems, causing irritability, &c. The patient should maintain a healthy, active, cheerful state of mind, a rigid diet, regularity in all the habits of life, as eating, sleeping, alvine evacuations, exercise. We are the creatures of habit; we can train our bodies, our organs, our appetite, our tastes, to almost anything; sleep enough to recuperate the worn-out energies of the system from the preceding day; moderate, agreeable exercise, never to fatigue, before breakfast; a proper exercise of every function, eating slowly, masticating thoroughly.

For the different grades of indigestion, relief may be obtained by the use of the bitter tonics and *nux vomica*; and, if necessary, pepsin after meals.

If the symptoms indicate excessive secretion of mucus, or where there is fermenting or decomposing food on the stomach, a thorough emetic of *lobelia*, twice or three times a week, acts well; it operates specifically upon the pneumogastric nerve.

Water should be the drink of the dyspeptic; it repairs the aqueous parts of the blood expended in secretion and exhalation. In these cases, also, *nux vomica*, *hydrastin* and *podophyllin*, might be given with advantage; or *nux vomica*, *hydrastin*, *xanthoxyl*in and *sanguinarin*. Under this head, the *sanguinarin* will change the action of the stomach; and, under its use, digestion will be more complete. When the mucous membrane is congested, the flatus, formed by fermentation, is retained by a spasmodic constriction of the cardia. Its irritation is reflected, through the pneumogastric nerve, upon the lungs, exciting a feeling of tickling, sympathetic cough. This peculiar, dry cough, yields rapidly to *sanguinarin*, *nux vomica* and *phosphorus*. If *podophyllin* be indicated in dyspepsia, modify its action by combining it with ext. *hyoscin*in or *cannabis indica*. *Senecin*, *pulsatilla*, *lycopodium*, are valuable remedies in children and females, and in patients of a lymphatic or strumous constitution. Where these remedies are indicated, a highly nutritious diet may be given with great advantage; also, means calculated to invigorate the system.

Where there is *cough*, which generally happens in persons predisposed to consumption, *phosphorus* may be given with the best results.

If there is headache, small doses of ipec. and nux vomica will meet the indications remarkably. Where there is excessive secretion of acids, nitro-muriatic acid, in six-drop doses, meets the indication; this might be alternated with the sulphate of soda. This latter remedy claims marked attention, on account of its power to prevent acetous fermentation. The whole range of bitter tonics, as hydrastis, gentian, cinchona, lupulin, frazerin, hamamelin, are of use. Oxularia, associated with dyspepsia, is most successfully treated with nitro-muriatic acid, and a tonic course. Hydrocyanic acid, in alternation with sub-nitrate of bismuth; the application of the irritating plaster over the region of the stomach; perseverance, and rigid adherence to strict dietetic rules, should be observed.

In addition to dyspepsia proper, we are often consulted on account of functional disorders of the stomach, from disease of other organs; such as irritation of the lung, brain, liver, uterus, frequently lead to sympathetic vomiting,—that is, vomiting caused by nervous influence reflected from the seat of the disease upon the muscles that perform the act. In these cases, the matters vomited are often acid, showing that the reflex influence excites not merely the act of vomiting, but a secretion of gastric juice.

A very common condition of the stomach, is the excess of acid, when the most available mode of relief is found in the alkalies: one or two doses of bi-carb. soda, half a drachm in a wine-glass of water; but the bi-carbonate or carbonate of potassa, as well as the saleratus, (pure,) is preferable, grs. xx, in a tablespoonful of water.

When the bitter taste prevails, give emetics, with a few grains of an alkali, followed with small doses of podophyllum and leptandrin, āā gr. i, in teaspoonful of simple syrup, every night. For hard pain in region of the stomach, before or after eating, give teaspoonful of comp. tinct. serpentaria, (sudorific drops,) in a wine-glass of water.

*Sympathetic vomiting*, from phthisis, results from the reflex action excited in the stomach by irritation of the lungs. This is best relieved by lobelia.

*Sympathetic vomiting*, from pregnancy, is best relieved by oxalate cerium.

In the treatment of dyspepsia, the restoration of all the secretions is of great importance. Pyrosis is best controlled by the use of the sub-nitrate of bismuth.

## COLIC.

Under this head, we have various painful affections of the abdomen, all of which are characterized by severe griping pains in the bowels. There are several varieties: simple colic, from improper food, or excessive in quantity; flatulent colic, bilious colic, colic pictonum, colic of children.

The common form of colic, is that produced from irritating ingesta, or acrid secretion. It commences with severe, twisting, griping pains in the abdomen, with vomiting, rigid contractions of the abdominal

parietes, followed, in some cases, by griping, alvine evacuations and looseness.

In flatulent colic, there is acute pain in the bowels, with occasional remissions, flatulent distention, spasmodic contraction, or both, relieved by pressure and the expulsion of flatus.

There is a morbid increased sensibility and irritability, irregular distention and spasmodic constriction of different parts of the canal. The morbid increased sensibility and irritability are common in females of a nervous temperament. The causes are indigestible food, unripe fruits, mental emotions. The best mode of treatment consists in giving occasional emetics of the C. powder of lobelia, and acting quickly on the bowels with the jalapin and colocynthin.

**BILIOUS COLIC.**—Severe griping pain, with vomiting of the contents of the stomach, and bilious or other perverted secretions; constipation or scanty evacuations, tension of the abdomen, and restlessness; evident deficiency of the secretions of the intestinal canal and associated viscera.

*Causes.*—Deranged function of the liver is the chief cause. This organ is torpid, secretes only a small quantity of bile, thus leaving the ingesta to be only partially acted on by one of its natural solvents, and thereby rendering the half-digested food an irritant to the digestive organs. Atmospheric and other influences are known to originate the disease in certain seasons.

*Treatment.*—On first of the attack, exhibit full vomiting, to induce free perspiration and active secretions, and follow with juglandin, grs. xx; colocynthin, grs. x; mucilage gum arabic, grs. xv.—Mix in three grain pills, and give one every hour. *R.*—Enemas of pulverized lobelia, ℥i; pulverized slippery elm, ℥ii; laudanum, gtt. xxv; warm water, Oss.

If the stomach is empty, with constant vomiting, give the neutralizing mixture, and treat the symptoms to allay the sickness; mustard to the stomach and bowels. If the stomach rejects everything, rest for a few hours, then give colocynthin, gr. ss; in half teaspoonful of syrup every hour, when the patient takes neither food or water in larger than teaspoonful doses. The enemas are to be continued, both to aid in opening the canal and to allay severe pain. Other remedies are employed at discretion of the physician.

After-treatment, diaphoretics, tonics and alteratives.

The attack is preceded by indigestion, headache, nausea, heartburn, constipation of the bowels, fullness of the liver and sigmoid flexure of the colon, griping; followed by sickness and bilious vomiting; foul tongue; loss of appetite; thirst; twisting pains about the umbilicus, and if drastic purgatives are given they increase the disorder.

**COLICA PICTONUM.**—This is the form of colic which usually attacks house-painters, or workers in the different preparations of lead. It is characterized by dull remitting pain about the umbilicus, obstinate constipation, convulsive spasm in the intestines and abdominal muscles, with a tendency to paralysis of the extremities. It is occasioned by long-continued constipation; by an accumulation of acrid bile; by cold; by a free use of unripe fruits; by great irregularity in the mode of living;



by acrid food or drink; by the inhalation of the vapor of lead, when we have the characteristic blue or purplish line running along the edges of the gums. This coloring matter is the sulphuret of lead, formed by the union of lead with the sulphuretted hydrogen from animal matter. Lead colic comes on gradually, with a pain in the pit of the stomach, extending downwards to the intestines, particularly round the umbilicus, constipation increases with the disease, the abdomen is insensible to pressure, it may be rigid or knotted. The skin is soft and moist; urine free and copious. The sphincters of the rectum and bladder are constricted. In protracted cases the pain in the back, loins and limbs, becomes more violent; the debility, tremor and paralysis of the extensor muscles, progresses. Difficulty of breathing, palpitations, short, dry cough, even epilepsy, coma or apoplexy supervene.

*Treatment.*—In the treatment of simple colic, an emetic of lobelia, then follow with the dioscorein, the applications of fomentations of lobelia over the abdomen, and an enema of the infusion of C. powder of jalap and senna.

In the bilious form, the dioscorein, C. powder of lobelia, the epilobium in infusion, and the application of chloroform or stramonium over the abdomen.

In the treatment of colica pictorum, a different course must be pursued, we must endeavor to relax spasm by lobelia, internally, locally over the abdomen.

The remedy acts by exciting nausea and syncope, during which the spasmodic affection is relieved, and the constriction of the intestine, if any exists, removed. If this is not effectual, try half teaspoonful doses of chloroform in mucilage or glycerine, and locally over the abdomen; if that does not succeed, try opium, belladonna, and hyoscinum in full doses. Then fifteen grains of alum every two hours, in alternation with five grains of iodide of potass every two hours.

To open the bowels, enemata of colocynth, and white liquid physic internally.

Baths of iodide of potassium are excellent. The use of electricity is useful, not only in relieving pain, but for eliminating the poison.

To meet peculiar indications, we have found the following remedies useful: *colocynth*, when biliary derangement is the exciting cause; *nuxvomica*, when there is torpor of the liver, with deficient secretion of bile; *hyoscinum*, *stramonium*, *macrotin*, where nervous symptoms prevail; *veratrum*, *colchicum*, where rheumatism is detected; *phosphorus*, where the patient is of feeble organization; *chelonin*, where worms are the complication.

## CONSTIPATION.

Prolonged retention of the feces; or slow, imperfect or difficult evacuations of them. In health, the intestinal apparatus completes its revolution once in twenty-four hours; within that period the whole process of digestion, the carrying forward of the contents of the stomach, the absorption of the chyle, the expulsion of the feces should

be accomplished. The different degrees of departure from health are thus distinguished, confinement of the bowels, irregular action of the same, inaction, delayed and imperfect action of the same. Constipation is dependent upon a constitutionally diseased state, affecting either the whole or special parts of the entire apparatus. The disease, then, is not a primary one, but constitutes the absence of action in a given way; and that absence of action is caused by this peculiar state constitutionally diseased, which suspends the harmonic actions of various parts of the human frame, of which suspension of peristaltic action is one of the manifestations; we do not, therefore, treat it as a disease. Deformity, pregnancy, over-excitement of the genital organs, old age, &c. In nearly all cases of constipation, there is a torpid state of the liver and great deficiency of bile.

Constipation must be cured by improving the secretory powers of the intestines, and stimulating them by nerve tonics. An effort should be made to relieve the bowels daily at a certain hour, after eating, for the very act of taking food gives an impulse to the peristaltic action of the intestine, and it is easy to propagate this impulse along the whole tract. Moderation and regularity of eating; frequent bathing; frequent drinking of cold water; frictions to the spine, exercise. If these do not succeed, enemata of cold water daily, immediately after breakfast. Small doses of *nux vomica* and sulphur, or *nux vomica* and *leptandrin*. Electricity will also be found useful.

### JAUNDICE.

The lungs and liver are the great decarbonizing organs of the body, and the activity of one of them is always in an inverse ratio to that of the others. In the lungs, carbon undergoes slow combustion, accompanied by a disengagement of heat for keeping up the animal temperature, and is thrown off as carbonic acid. In the liver it unites with hydrogen, and small portions of hydrogen and nitrogen, and forms bile. In summer, when the temperature of the air is high, there is less demand for the oxygen of the air; therefore, the decarbonization of the lungs is less, and the extra labor of getting rid of the carbon, which the lungs do not throw off with sufficient rapidity, devolves upon the liver. This increased secretion, which the liver is required to perform, demands increased activity in the circulation of the portal system; and all the ramifications of the veins, which unite to form the *vena portorum*, must partake of the acceleration. The circulation supplying the digestive organs must then be more active in warm weather, and in warm countries, as it also is after taking food.

Besides the lungs and liver, the skin also participates in the work of eliminating carbon and other effete waste material of the body. As the product of its secretory function, we have a sebaceous matter, for keeping the skin soft and in a healthy condition; also the perspiration furnished by the sudoriferous glands, and a large quantity of fluid passing off by simple evaporation. This keeps up an equilibrium—aids the liver in decarbonizing the blood. The relation of the skin to the liver, in eliminating disease, causing materials from the system. It can

easily be perceived that, if the skin and liver are over-excited by any cause, the tonicity of the system is impaired; if we have the function of the liver deranged, the stomach and intestines become involved.

Yellowness of the skin and eyes, feces white, urine of a high saffron-color. The symptoms vary. It is usually distinguished by pain in the liver, bowels constipated, perspiration stains linen yellow. We have the constitutional symptoms, exhibiting the absorption of bile pigment, from obstruction of the ductus communis, or one or more of the branches of the hepatic duct, by a gall-stone, or by the pressure of a tumor.

Another cause is a deficiency of the secreting cells of the liver, with no secretion taking place. Jaundice is a symptom of several fevers, as bilious remittent and yellow, as well as different affections of the gall ducts and stomach. If it comes on with indigestion, slight fever, sluggishness, pain in the hypochondrium, it may be regarded as a functional disease of the liver and stomach; if it follows violent spasmodic action, pain in the region of the liver, it is dependent upon the arrest of gall-stone in the biliary passages; if it precedes delirium, coma, convulsions, it indicates disorganization of the hepatic cells; and if it comes on slowly, and is tedious, and the skin is intensely tinged, it may depend on some organic disease of the liver.

The causes of jaundice, from suppression, secretion of bile, may be grief, mental emotion, bites of venomous reptiles, miasma, noxious products of depraved digestion, and certain vegetable and mineral poisons.

*Treatment.*—This disease should be treated entirely according to its cause, as indicated by the symptoms. If it depend upon functional disorder, the following remedies will be found useful: Podophyllin, leptandrin, euonymin, gelsemin, sanguinarin, sulphur, phytolacca, nitro-muriatic acid, nux vomica, digitalis, elchona, taraxacum, belladonna, phosphorus, &c.

Podophyllin, in small doses, produces excitement of the salivary glands and glandular system generally, excites circulation, nervous irritability, and a stimulus to every tissue of the body. It is an insensible alterative, which subverts diseased action without deranging the health; has no deleterious effects, but many good ones. The effects of leptandrin and euonymin are analogous, but milder; sanguinarin acts on the liver and stomach, improving digestion, increasing all the secretions. In jaundice, dependent on torpor of the secreting viscera, it is unexcelled.

Nitro-muriatic acid and phosphoric acid are indicated if there is a feeling of weight, pain, deficiency of bile in the stools, saffron skin. In these cases, they increase the action of the kidneys, diminish the bile in the urine, and under their use the disease rapidly subsides. Aconite and gelsemin, and the other concentrated remedies, as apocynin, chelonin, myricin, populin, rhein, colocynthin.

An excellent plan of treatment consists in administering podophyllin, leptandrin, and other agents, morning and night, to meet the indications, and during the day to give acid, phosphorus and nitro-muriatic, alternately; to paint the region of the liver with the nitro-muriatic

acid, acidulating water with the same acid, and sponging the patient with it every three hours. If the affection depends upon the arrest of gall-stone in the biliary passages, a thorough lobelia emetic.

### HÆMATEMESIS.

**VOMITING OF BLOOD.**—The mucous membranes consist of a layer of epithelium spread like a pavement over a thin and structureless membrane, which serves to support it; and the blood-vessels run and ramify in the cellular tissue behind. In whatever way congestion be induced, whether by impediment to the return of blood from the stomach, or passive congestion of the intestines, from obstruction to the portal circulation, the impediment to the passage of blood, through the liver or chest, may create hemorrhage from the stomach before it creates dropsy.

The mucous membranes compose the only tissues from which hemorrhage occurs readily, and from mere congestion. Previous to the vomiting there is a sense of weight, fullness, pressure and disturbance in the stomach; nausea, faintness, debility, general uneasiness, giddiness and confusion in the head, roaring in the ears, anxiety, saltish taste in the mouth, loss of appetite, sometimes pain in the stomach or chest. The hemorrhage generally occurs from the mucous membrane of the stomach, but also from the liver and spleen. If the blood comes from the liver, it passes through the bile duct into the duodenum; when from the spleen, through the vasa brevia.

The appearance of the blood which is thrown up varies, being, in some instances, liquid and bright red, at other times black and coagulated. If the hemorrhage proceeds from the stomach, it is red and liquid; if from the liver or spleen, black and coagulated. As to quantity—sometimes large, at others small.

*Causes.*—Intemperance, suppression of any discharge, as hemorrhoids, catamenia, congestions and engorgements of the liver, spleen and pancreas, scirrhus and other ulcerations; organic disease of the liver, and drunkard's liver, organic disease of the heart, amenorrhœa, ulcer of the stomach.

*Treatment.*—Such a regimen should be adopted as will regulate the bowels, portal circulation, and prevent engorgement of the stomach; every measure that will promote the health. Then it should be treated according to its cause; if from suppressed menstruation, the following remedies will be successful: macrotin, trillin, sabina, ergot, iodine, betin, collinsonin, hamamelin, ipec., gallic acid, &c.; if from ulcer of the stomach, sub-nitrate of bismuth, gelsemin, gold, nitro-muriatic acid, iodide potass, erigeron, &c.; if from the liver or spleen, they should be appropriately attended to.

### INFLAMMATION OF THE STOMACH.

Gastritis results from direct local injury, as mechanical irritation, the action of heat or strong acids, irritation from indigestion, alcoholic drinks, irritating drugs. The local symptoms are: excruciating pain



and frequent vomiting; the heart's action is depressed, sometimes extremely, so as to prove dangerous, and the inability to eat or digest may cause death. But, if there be some restoration of the vital powers, by which the most essential functions are resumed, there may be no fever, no serious disorder of the functions of the brain.

*Symptoms.*—Burning, pricking or lancinating pains in the stomach, nausea, vomiting, soreness, tenderness, pain on pressure, intense thirst for cold drinks, which are ejected almost as soon as swallowed, affording temporary relief; soreness in the throat and œsophagus, tongue red on its tip and edges, covered in the centre with a white or yellowish fur; position mostly on the back and side, with knees drawn up to relax the abdominal muscles, great anxiety, depression, and fear of death; pulse rapid, sharp, contracted, almost thread-like; constipation, loathing of food and warm drinks, persistent vomiting, delirium, fever; unusual dullness in the epigastric region, and, as the disease advances, the extremities become cold, features contracted and sunken, the eyes glazed or suffused, and, finally, diarrhœa, cold sweats, coma and convulsions supervene.

*Causes.*—Excessive use of highly-seasoned food, stimulating drinks, the introduction of irritating substances into the stomach, poisons, injuries, the use of emetics, drastic cathartics.

*Treatment.*—The ordinary remedies used in the treatment of gastritis are: aconite, gelseminum, veratrum, nux, pulsatilla, sub-nitrate bismuth.

After proper attention has been paid to the cause of the disease, apply mustard from the extremities to the knees, sponge the surface every two or three hours, evacuate the bowels by means of an injection, and apply a powerful sinapism over the region of the stomach, and give the patient from one to two drops of equal parts of aconite and gelseminum. If the symptoms do not yield under this treatment, substitute veratrum for the aconite, allowing the patient drinks of a mucilaginous character, of gum arabic, slippery elm, flaxseed, and, if it is still persistent, give an alcoholic vapor-bath, and try a few drops of the tincture *rhus radicans* in alternation with *nux vomica*. *Belladonna* and *pulsatilla* are very valuable, if caused by irritating food.

Iodine, highly diluted, and in small doses, will afford relief, if the inflammation has been caused by mercury. *Colchicum* is an important remedy in cases of metastasis, of rheumatism to the stomach. *Ipec.* is applicable to inflammations caused by excessive doses of antimony, arsenic and corrosive sublimate.

The patient may be allowed, with advantage, small quantities of ice; and an infusion of peach-tree bark will be found useful, as also small doses of hydrocyanic acid, or the sub-nitrate of bismuth. The diet should be fluid, but nutritious.

**CHRONIC GASTRITIS.**—In some cases, chronic gastritis is the result of partially subdued inflammation; or, it may come on slowly and insidiously, from a number of causes, operating at the same time. The most prominent symptoms are identical with dyspepsia. There is no fever; the pain, flatulence, intense acidity, loss of appetite, are the same in both.

The characteristic symptoms are, pain in the stomach, excited by pressure or certain kinds of drinks; frequent vomiting of food and drink, loss of appetite, putrid taste in the mouth, thirst, fetid breath, acid or bitter eructations, acidity, distension of the stomach with wind, tongue red and clean, or furred in the middle with a dirty fur, melancholy, peevishness, irritability, emaciation, &c.

*Treatment.*—The medicines valuable in the acute stages, are useful in the ordinary forms of chronic gastritis; and, in addition, we employ with most decided advantage, bismuth, pepsin, phosphorus, nitro-muriatic acid, cinchona, hydrastis, xanthoxylin.

*Lobelia* is of utility in a large class of gastric derangements: nausea, vomiting, loss of nervous energy, dyspeptic and bilious symptoms; a dose, about three times a week, of the C. powder. The irritating plaster should be applied over the region of the stomach, (and respread every day.) If the stomach is very irritable, digestion feeble, the blandest articles of food should be selected, and taken in small quantities, sufficient to support the strength. An infusion of cinchona, gold thread, hydrastis, &c., may be used with marked benefit. If there seems to be a want of innervation in the stomach, nitro-muriatic acid, nux vomica, prickly-ash, phosphorus. If the liver seems inactive, combine leptandrin, leontodin, populin, and give sufficient nightly to obtain a biliary action. Some cases are much benefited by the C. podophyllin pills, with extract of hyosciamus; or the fluid extracts of corydalis, cornus, &c., answer a good purpose. If there is irritation of the kidneys, remove it, as it is almost impossible to do much for the stomach until free secretion is obtained. If digestion is feeble, pepsin answers admirably.

## ULCER OF THE STOMACH.

This generally begins with obstinate vomiting, showing either congestion or inflammation of the stomach. The vomiting may recur almost daily, for months after inflammation has subsided. It is divided into three varieties: superficial ulceration, follicular ulceration, and chronic or perforating ulcer. This distinction is made out post-mortem, the symptoms of ulceration being rather obscure.

*Symptoms.*—An important symptom is pain, epigastric or dorsal, increased by pressure. This may occur with ulcer, but not necessarily a positive symptom. It may be an indication of an inflammatory condition of the stomach. To be positive of the existence of ulcer, the numerous symptoms must be well marked. The pain is accompanied with vomiting and hemorrhage at some stage of the malady, in nearly all cases. If a case of sudden, profuse gastric hemorrhage, we have to take into consideration the probabilities of its being associated with scirrhus of the liver, vicarious menstruation, purpura, or disease of the heart. If it cannot be attributed to any of these, and we have the pain, epigastric and dorsal, we have strong reason to suspect ulceration. It is true, we often meet with cases of gastric hemorrhage, complicated with depressed nerve powers and malarial diseases, apart from a special gastric affection. The gastric

mucous membrane may suffer from hemorrhage by paralysis of the arterial nerves.

*Pathology.*—Ulcer of the stomach may originate in various ways, and, when it terminates fatally, it is usually by perforation of the stomach. When this happens, there are violent paroxysms, attended with unusual pain in the abdomen, ending in collapse and death. The abdomen is found distended with air, and fluid similar to that vomited; the coats of the stomach greatly thickened, especially the parts near the ulcer.

*Treatment.*—In the largest number of cases the same treatment should be adopted as for chronic gastritis. The irritating plaster should be applied over the stomach, and removed every other day; free suppuration is desirable; small doses of leptandrin and myricin and sub-nitrate of bismuth, should be given every few hours. Opium, with a small proportion of nux vomica, should also be given, to relieve pain, check irritation, and support the strength. Opium is most reliable here; it buoys up the nervous system, checks the expenditure of tissues generally. I have found small doses of the permanganate of potash effectual in promoting healing; so also the occasional use of the syrup of the iodide ferri. If there is *diarrhœa*, gelsemin and geranin; if there is *hemorrhage*, large doses of gallic acid; if there are eructations of air, regurgitations of food, inflammation of the mucous membrane, vomiting of sour fluid, lime-water, in milk, answers well. The pain would always seem to be relieved by opium and sub-nitrate of bismuth. The secret of success is rest, perfect rest, in the recumbent posture. This is essential. The diet should be bland, farinaceous, pulpy; given in small quantity, at short intervals, so as to avoid distending the stomach. If the stomach rejects everything, suspend all nourishment for a time, and give nutritious enemata. In ulceration of the stomach, the mineral acids, as the nitro-muriatic, hydrocyanic, with a small proportion of nux vomica, in alternation with pepsin. Our chief object in treatment must be to improve the general condition of the system, by nutritious food, giving remedies calculated to improve the general mucous surface and invigorate the organ as much as possible. Thirst is best relieved with small quantities of soda-water, or allowing ice to dissolve in the mouth slowly.

### APHTHÆ.

Under this head we may include thirst and follicular inflammation; all generally supposed to arise from acidities or acrimonious humor lodged in the stomach and bowels. Various causes of derangement in the alimentary canal are certainly to be regarded as those which occasion aphthæ. One of the chief of these is worms; and it appears in this way that these two complaints are so frequently conjoined. Another occasional cause is bad milk, which may be vitiated by whatever injures the mother's health, such as anxiety, violent passions, improper diet, &c.

In some instances, aphthæ may possibly depend upon the natural habit of the infant, as well as upon the mode of bringing it up, par-

ticularly in regard to food, air, and the state of the bowels, and want of proper attention to the stomach and bowels.

The disorder generally appears first in the angles of the lips, and then on the tongue and cheeks, in the form of little white specks. These, increasing in number and in size, run together, more or less, according to the degree of malignity, composing a thin, white crust, which at length lines the whole inside of the mouth, from the lips even to the œsophagus, and is sometimes found even to extend into the stomach, and through the whole of the intestines, producing also a redness about the anus. When the crust falls off, it is frequently succeeded by another of a darker hue; but this only happens in the worse kind, for there are frequently cases that are mild, spread thinly over the lips and tongue, which return a great many times, and are intractable.

When aphthæ is an idiopathic disease, it is never or seldom attended with any fever at its commencement, although the mouth is so very much heated as to excoriate the nipple of the mother, and becomes so tender that the child is often observed to nurse with reluctance and caution; but, when it arises in consequence of a severe affection of the bowels, or other infantile disorders, it is accompanied with fever and severe diarrhœa. Even in the worst grade, there usually is but slight fever at the commencement of the complaint; but, as it progresses onwards, there is sure to be slight febrile disturbance. In some cases we have disturbance of the nervous system, violent hiccough, sense of suffocation, great prostration of strength, severe diarrhœa, coma; the aphthæ, being of a brown color, &c., must be regarded as unfavorable symptoms.

*Treatment.*—The disease, when recent, and confined to the mouth, may in general be easily removed, but when of long standing, and extending down to the stomach and intestines, it often proves fatal.

To evacuate the stomach of acidities, or other acrimonious humors, it is an excellent plan to give a gentle emetic; indeed, this should be done even in slight cases, but when the specks are of a dark color, and the inside of the cheeks are covered with them, the emetic is essentially, imperatively demanded; it empties the stomach of the crude juices and acrid matter, and will, in all cases, be of great use. The best emetic consists of the C. tinct. or powder of lobelia. After the operation of the emetic, the C. powder of rhubarb and potassa in infusion, or the neutralizing cordial, should be administered until it acts on the bowels two or three times. I have succeeded well with small doses of leptandrin and juglandin, for a few days in succession, and then the rhubarb, to carry down the scales as they fall off from the ulcerated parts. In mild cases, rhein, in trituration, is the best remedy; but where the child is of a robust habit, and the disease is violent and has extended rapidly, it is better to give, in addition, small doses of gold, or muriate of platinum, or the stillingia alt., alternately, with small doses of the sub-nitrate of bismuth.

When a weakly child is attacked with aphthæ, which appear of a malignant nature, and which, from its dark appearance, threatens to terminate in gangrene, we should give a solution of hydrastin and



baptisin, or a decoction of cinchona joined with hydrastis. To render this more effectual, we may also use borax, say thirty grains to the ounce of water, and direct that the mouth be carefully washed with it, the lotion being applied by means of a soft piece of lint, or the muriate of hydrastis in solution.

In order to keep the infant's mouth clean and comfortable, and to prevent injury to the nurse as far as possible, as well as to dispose the sloughs to fall off, and incline the parts underneath to heal, it is sometimes expedient to make use of gargles, detergent applications, as the permanganate or chlorate of potassa, or a solution of the sulphite of soda, or dilute sulphuric acid mixed with honey, or gallic acid in solution, or powdered tannin sprinkled on the ulcers, or borax and honey, or the honey of roses, alum and myrrh, gum arabic and myricin. In the gangrenous form, it is best to wash the parts frequently, by means of a syringe, or a very fine sponge, with a strong decoction of cinchona, acidulated with nitro-muriatic or aromatic-sulphuric acid; and if they do not yield, apply either the dilute nitric acid or sulphuric acid, or sulphate of zinc. At the same time exhibit sesqui-carbonate of ammonia, or chlorate of potassa, sometimes a wash of chlorinated soda, or chloride of lime, with camphor and myrrh, &c. If there is any febrile action to any considerable extent, the tinctures of aconite and veratrum should be given, diluted in water. After the use of these remedies, give the iodide of potassium in an infusion of equal parts of alnus, rumex and quercus rubra, and the chlorate of potassa in a weak solution.

If the aphthæ extend to the bowels, enemas of a mucilage of slippery elm or flaxseed, and also the same remedies internally.

If we have diarrhœa, the fluid extract of crane's-bill and gelsemin, or myricin and sub-nitrate of bismuth, &c.

The skin should be stimulated twice daily; a proper perspiration should be excited; a tepid bath occasionally.

To remedy the inconvenience arising from the soreness of the mouth and tongue, they should be washed frequently with some of the remedies mentioned. In all forms of the disease, the best results are to be obtained from a decoction of cinchona, and the sulphate of cinchonine, internally, in large doses.

The diet should be light, nutritious, as milk, mucilaginous drinks, jellies, Port wine and water.

To restore the lost vigor and tone of the system, cinchona and iron, tonics, wine bitters, as moderate exercise as the strength will allow.

## INTESTINAL WORMS.

The human body is infested by several species of worms; among the most remarkable are, the ascarides, or small white worm, the teres, or round worm, and the tænia, or tape worm, which is flat, consisting of many joints.

Different situations of the intestine have been mentioned as being occupied by each kind, as the ascarides in the rectum, the teres in the small intestine and stomach, the tænia the whole of the intestinal

tract. Worms frequently exist in early life, without the slightest indication of disease. The cause is, usually, unwholesome food, imperfect digestion, scrofulous habit, indulgence in unripe fruits, fat, farinaceous or saccharine articles of diet, milk, &c. The symptoms are variable; capricious appetite, fetid breath, acid eructations, pain in the stomach, grinding of the teeth during sleep, picking at the nose, paleness of the countenance, hardness and fullness of the abdomen, slimy stools, griping pains about the umbilicus, heat and itching about the anus, short, dry cough, emaciation, fever, evening exacerbations, irregular pulse, convulsions.

In the treatment, we must have in view the destruction and discharge of the worms, and preventing their future generating. The destruction must be accomplished by remedies which act either chemically, mechanically, or by simple evacuation. Remedies which act mechanically have been useful, and more so when combined with those which have a chemical and purgative effect. The spirits of turpentine is a remedy that has all the therapeutic properties indicated, and is well adapted to all the different varieties. If this fail, the pink-root may be useful; ten grains of the powder to a child, night and morning. The spigelia is a poisonous, narcotic vegetable, and it is this property that renders it so beneficial in those cases.

In tape worm I have found the oils of pumpkin-seed, male fern and turpentine, the most admirable combination ever introduced, followed by an active cathartic of podophyllin and jalapin. An infusion of kosso or kameela, or an extract of the same, may be used with advantage. In the teres, or round worm, the best therapeutic agents that I have used is the oil of chenopodii or santonine, or santonine and podophyllin. Santonine is a medicine that is certain and satisfactory; salicin is also good. In the ascarides, or seat worms, enemas are of the greatest utility; an injection of a solution of common table salt, podophyllin, aloes, lime-water, camphor-water.

For the complete removal of all kinds of worms,\* treatment should be persevered with for some time, as they are surprisingly productive. After a proper course of vermifuge medicines, accompanied with evacuants, we should employ such remedies as sulphate hydrastin or bark, or other remedies which have a tendency to strengthen the stomach and intestines.

## CHOLERA INFANTUM.

Cholera infantum is a very common affection in this country, and one very difficult to treat successfully. It occurs most commonly about the period of dentition, and in the months of July and August. A period of intense heat has much to do in bringing it on, as well as cool weather has in checking its course.

*Symptoms.*—Cholera infantum is usually preceded by feculent diar-

\* When symptoms indicate worms to be in the stomach, the patient should take large amounts of mucilaginous fluids for the space of an hour, and then take a full, prompt emetic. Then oil of wormseed, gtts. x; spirits turpentine, gtts. x; tinct. assafetida, gtts. x; on a teaspoonful of sugar, or in syrup, repeating three times daily for three days, and follow with a brisk purge of senna, decoction or extract; or, what is a good vermifuge of itself, the comp. pow. of podophyllum.

rhœa, which gives little trouble, as the appetite is not impaired, sleep is good; merely a little emaciation. Suddenly we have prostration, frequent discharges from the bowels, nausea, vomiting. The thirst is great, the child desiring water, which, if given, is immediately rejected by the stomach. The skin is harsh, dry and constricted, and, in some cases, seems to be drawn upon the patient like parchment. As the disease advances, the desire of drink becomes more craving, the evacuations from the bowels more frequent, the little sufferer becomes extremely emaciated; the discharges vary in character, sometimes yellowish, with more or less stringy mucus mixed with them, showing disease of the mucous follicles; at other times they are greenish, have a sour smell; at others, clayey; again, almost white, and rarely of a dark color. There is usually great irritability of the nervous system; the patient is restless, uneasy, never satisfied, always changing its position, desiring everything, satisfied with nothing, very restless and wakeful at night. The child is invariably worse at night, and when the disease is well advanced, it is impossible to keep it in bed at night; the heat seems to add to its torture, and it is only satisfied when it can freely turn, or when it is carried from place to place. The brain sympathizes; we have often congestion, effusion, indicated by the continual moving of the head from side to side, sleeping with its eyes open, rolling the eyeballs upwards. When the pupils do not contract upon exposure to light, there is congestion with effusion; we also often have a determination of blood to the head, throbbing of the carotids, contraction of the pupil, intense restlessness. The prognosis is usually favorable, if there is no brain symptoms; if the latter exist, the mortality is great.

*Treatment.*—In cholera infantum, our treatment must be very active, and should be directed to arresting the prominent symptoms. For the nausea and vomiting, small doses of lime-water in alternation with the neutralizing cordial, or an infusion of prickly-ash, with sub-nitrate of bismuth, or minute doses of aconite, gelsemin and morphia, or external applications are of great value; the aromatic plaster of cloves, allspice and capsicum; hot fomentations give great relief, so does more active sinapisms. Once the sickness of the stomach is arrested, a great deal is accomplished; the diarrhœa is easily controlled, either by the C. syr. rhubarb, or by the leptandrin and geranin, or nitro-muriatic acid and frazerin, or hydrastin and hamamelin. The sub-nitrate of bismuth may be administered with the most marked advantage. If the skin is harsh and dry, the aselepin should be given every hour, until the surface becomes moist, and then some preparation of bark, either Huxham's tincture or quinine. If the case is chronic, the C. syr. of rhubarb and hydrastis, in alternation with epilobium in brandy. The bismuth and leptandrin are very valuable, if there is any torpidity of the liver. If we have periodicity, quinine and hydrastin are the most efficient remedies. In some cases, minute doses of nux vomica, with any of the other remedies, act well and efficiently. One of my favorite remedies, in all cases, is the juice of raw meat, given in teaspoonful doses every hour, white of egg and brandy. The bath is an important agency in the treatment; it may



be used cold, tepid or warm, according to the indications, and may be medicated by the addition of salt, bi-carbonate of soda, quassia, cinchona.

The food will vary in different cases; if the child nurses, it may be restricted to the mother's milk, or if this disagrees, cow's milk; in other cases, juice of meat seems to answer best, and it would seem the most gratifying results follow the use of the juice of meat, or beef-tea and port wine, and even cod-liver oil answers an admirable purpose if it agrees with the stomach. Stimulants, as brandy with *cpilobium*, given every hour. Quinine and sulphate of hydrastin are excellent remedies; they will often arrest the diarrhoea after all other remedies have failed. Coffee has a most surprising effect as a stimulating tonic; under its use vomiting is arrested, the evacuations become more consistent, and the symptoms quickly subside.

This disease is often relieved with fresh castor-oil, one teaspoonful, adding three to six drops of laudanum; should this not act upon the bowels in three hours, repeat the dose. Then give half to one teaspoonful of syr. rhei and potassa, every two hours. If necessary, add a few drops each of laudanum and tincture of kino. Should the stomach reject the above, give teaspoonful doses of lemonade, every half hour, to allay nausea, and then give the syrup as before.

Ry.—Pulv. ipecac., gr. i; hamamelin, grs. ii.—Mix in four powders, one every hour, in a teaspoonful of syrup or water. Wash the child from head to foot in warm saleratus water twice daily.

## TABES MESENTERICA.

Tabes mesenterica is a tubercular or strumous enlargement of the mesenteric glands, abdominal phthisis. The mesenteric glands are so small at birth as scarcely to be observed. But about the period of dentition they gradually become more developed, in common with the other glands of the body, and it is at this period that they are liable to take on diseased action, more especially tubercular deposits, and this is very likely to occur if the child is ill nourished. Children of the scrofulous diathesis are exceedingly prone to this disease, from the eighth month to near the tenth year. It may be occasioned by poor food, worms, excessive diarrhoea, &c.; but, whatever the cause, it is very difficult to cure.

*Symptoms.*—The symptoms are very various; pain in the bowels, more or less severe, causing the child to keep his legs drawn up towards his belly. The lips are of a deep red, and the angles of the mouth are covered with small ulcers, or the whole lip is fissured. The bowels are variable, generally relaxed; the motions are often unhealthy, light clay-color, extremely fetid, as is also the breath; sluggishness, lassitude on the slightest exertion, loss of appetite, wasting of the muscular system, with bloating, swelling, and great prominence of the abdomen, œdema of the lower extremities; the emaciation is great, and the debility increases rapidly. The enlarged glands in the mesentery can sometimes even be felt through the attenuated abdominal parietes. When the disease is thoroughly established, obstinate diarrhoea often



sets in, with hectic fever. Symptoms of pulmonary consumption may set in, or irritation, or congestion of the brain, or the child may die worn out—exhausted by the disease. If recovery does occur, convalescence is protracted, and the greatest possible care is necessary to shield the child from all other infantile disorders.

*Treatment.*—In all cases of *tabes mesenterica*, the patient should make use of food that is nutritious, easy of digestion, adapted to the child's age and strength; it should be taken frequently, and in small quantities. Thorough hygiene and change of air should be resorted to. To assist the digestive powers, resort at once to Beach's wine bitters, an infusion of gold-thread or cinchona, and with the food give pepsin. Proper evacuations should be strictly attended to; for this we suggest leptandrin, hydrastin, and iron by hydrogen, every night. This preserves an admirable action of the liver, as well as a proper action of the bowels, carrying off all effete matter. An emetic, say three times a week, acts in a most salutary manner. I have also found small doses of *santonin* of intrinsic value; the pepsin, after meals, I regard as extraordinary in its effects. The use of cod-liver oil, when it can be taken without nausea, or deranging the bowels, sometimes proves beneficial, as also does the inunction of the same. Friction of the whole surface of the body, night and morning, with glycerine, has a good effect; it is productive of tranquil sleep; it increases secretion from both kidneys and liver; it possesses specific properties in all diseases of scrofulous or tubercular origin. *Morphia* in glycerine, as an inunction in the axilla and groin, where the lymphatics are numerous, is a good mode of procuring rest. The abdomen should be well supported by a flannel bandage. The iodide of iron is often valuable. Benefit is also derived from minute doses of the chloride of gold, the *C. syr.* *stillingin* and *irisin*. If diarrhœa prevails, then the neutralizing cordial, the chalk mixture, with tincture of kino, change of air, especially the sea-side, warm or tepid salt-water baths, and, above all things, animal food, provided it can be digested, will often work wonders. The emaciated state is best overcome by tonics. To strengthen the stomach and alimentary canal, and promote a good digestion, the only and best means by which nutritious chyle can be obtained, and the body kept in a healthy state, is by such remedies as bark, sulphate hydrastin.

### DIARRHŒA.

Diarrhœa consists in frequent and copious discharges of feculent matter by stool, accompanied by griping, and often, at first, with a slight degree of vomiting, but unattended either by inflammation, fever or contagion. The presence of these, with tenesmus, and an evacuation of blood and purulent mucus, instead of natural fœces, which prevail in dysentery, will always enable one to distinguish the two diseases. It is readily diagnosed from *cholera morbus* by the discharge not being bilious, and also by there being no vomiting of bile.

Diarrhœa is evidently a morbid increase of the peristaltic motion; which morbid increase is the effect of a great variety of causes, applied

either to the body in general, or acting solely on the parts affected; of the former, cold, check to the perspiration, causing a determination to the internal parts, mental emotion, disease, dentition, fevers, &c.; of the latter, articles taken into the stomach, as acid fruits, oleaginous or putrid substances, articles capable of causing fermentation, purgatives, irritating matters thrown into the intestines, causing increased excretion.

In diarrhœa, each discharge is usually preceded by flatulence in the intestines, with a murmuring noise, a feeling of weight and uneasiness in the lower part of the belly, which ceases when the discharge takes place. The appearances of the stools are various; sometimes thin, from admixture of a large quantity of fluid, which is poured out by the exhalants of the intestines; sometimes slimy, or green, or dark brown, and very fetid. As the disease advances, the stomach becomes affected; sickness, nausea, vomiting, anemia prevail, with dry, parched skin. If it continue for any length of time, emaciation, dropsy, relaxation and extreme weakness supervene.

*Diagnosis.*—In this affection we are to be determined by the particular cause from which it arises; whether symptomatic of another disorder and by the debility present.

*Treatment.*—In the treatment it will be necessary to attend to the following indications:

1st. To obviate or remove the morbid cause.

2d. To suspend the increased action which constitutes the disease, and—

3d. To restore the impaired tone of the parts.

The value of emetics, in not only cleansing the stomach, but acting upon the secretions, when the diarrhœa has arisen from excess or from agents which have become acrid on the stomach, is self-evident. An emetic of the C. powder of lobelia, followed by the neutralizing cordial. If we have it proceeding from cold, or from an irritable condition of the bowels, then small doses of ipecacuanha, with asclepin, given every two hours, with the vapor-bath. This latter is invaluable, exciting the action of the superficial capillaries of the whole system, determining a greater flow of blood to the surface of the body, relieving the irritable state of the intestines, and removing the disease. If we have a species of fermentation present, a septic acid generated in the intestinal canal, which is known by frequent eructations of air, griping pains in the bowels, with dejections of a white, chalky appearance, which, in passing off, occasion a hot, smarting sensation in the lower bowel, an excellent remedy here is the C. syr. rhei et hydrastin, small doses of leptandrin and nux vomica.

Strong purgative remedies are injurious; but where it arises from a morbid state of the alimentary tract, such agents as leptandrin, euonymin, hydrastin, myricin and gelsemin, are invaluable; or the following may be tried in teaspoonful doses, according to indications:

*R.*—Oleum ricini, mucil. acacia, aa ʒi.; spts. turpentine, ʒi.; vino Oporto, ʒii.—*M.*

This could be alternated with fluid extract of crane's-bill and gelse-

minum. If these fail, give the neutralizing cordial; after which, baptisin, Collinsonin, hamamelin, should be given.

If we have diarrhœa from some repelled eruption or disease, then the neutralizing cordial, with hot fomentations. Should it occur from worms, which may be known by the character of the evacuations—slimy, &c., mixed with pieces of the decayed worms—santonin, turpentine. If it proceed from malaria, quinine, prussiate of iron and gelsemin; if from unwholesome water, the impregnation of the water with lime or other agents; if it proceed from dentition, it should not be hurriedly checked, unless it is excessive, and the neutralizing cordial with leptandrin, alternated with the chalk mixture and tincture kino. These remedies correct the acidity, and put a stop to the griping stools. If these fail, then resort to some of the remedies mentioned below. During teething, or upon the striking in of an eruption, diarrhœa often occurs, and then the irritating plaster applied to the back, a plaster of pulverized Peruvian bark to the abdomen, or equal parts of allspice, cloves and capsicum, together with the C. syrup of rhubarb and golden seal. A diarrhœa which proves salutary should not be too hastily arrested; but if it tends to exhaust in a great degree, then the most powerful remedies should be employed.

To fulfil the second indication in the cure of diarrhœa, namely, that of suspending the increased action which constitutes the discharge, we must employ such remedies as gelsemin, baptisin, myricin, geramin, in small but repeated doses, so as to keep up a constant effect; or they should be combined with the remedies we administer, never forgetting to enjoin rest in the recumbent posture, with a slight degree of counter-irritation over the abdomen.

The third indication is to be effected by the use of astringents and tonics. These remedies are specially adapted to those cases where the irritability of the intestines depends on a loss of tonicity, which may occur from debility or from causes acting on the intestines. The most common astringents are tannin, kino, erigeron, geramin. The oil of ergot, ten-drop doses every three hours, in mucilage, leptandrin and ipec. In the green evacuations of children, tannin, opium and cinnamon are excellent. Extract logwood, gelsemin and cinchona, sub-nitrate of bismuth and nux vomica act well, by stimulating the nervous energy of the bowels. Creosote or oil of turpentine in mucilage, citrate of iron and quinine, or prussiate of iron, quinine and gelsemin, or bebeerine and hydrastin, if of an intermittent type. If to an acidity, an alkali and ipec., the sulphites. In chronic cases, great benefit will be derived from lime-water and milk, with mucilage of gum arabic.

The tonics which are most likely to prove useful are, hydrastin, cinchona, the various preparations of iron, pepsin, nitro-muriatic acid.

The diet should consist of articles that are easily digested: rice, arrow-root, sago, rare-cooked beef-steak, chicken.

An excellent nourishing drink consists of equal parts of port wine and beef-tea.

Those who are liable to frequent attacks of this disease, either from



inherent weakness or too great an irritability of the bowels, should live temperately, avoiding acids, unwholesome diet, indigestible food. Thorough hygiene should be observed, avoiding cold, moisture, or whatever would interfere with the function of the skin.

### DYSENTERY.

Dysentery is a disease of a contagious nature; a disease in which we have an inflammation of the mucous membrane of the intestines, accompanied with frequent stools, severe griping pains, tenesmus, fever; the stools frequent, small in quantity, and without any natural fæces intermixed, but consisting principally of mucus, streaked with blood; and when the natural fæces do appear, it is usually under the form of small, compact, hard substances. Dysentery is most common in the fall, and is occasioned by cold or moisture succeeding intense heat, whereby the perspiration is suddenly checked, and a determination made to the intestines. It may be produced by unwholesome, putrid food, noxious exhalations, vapors, malaria, certain epidemic influences, &c. Dysentery may be readily distinguished from diarrhœa, by the absence of fever, by the tenesmus, the appearance of the stools. An attack of dysentery is usually preceded by loss of appetite, constipation, flatulency, sickness at the stomach, and a slight vomiting, succeeded with chills, heat of skin, frequency of the pulse. These are usually the precursory symptoms of the griping and tenesmus, although, in some cases, the local affection is perceived first.

When the inflammation commences to occupy the lower portion of the intestinal tract, the stools become more frequent and less abundant, and in passing through the inflamed parts, they occasion great pain, so that every evacuation is preceded by a severe griping, rumbling noise, unusual flatulence in the bowels. The motions vary in color and consistence, sometimes being frothy, streaked with blood, or of an acrid, watery humor, like the washings of meat, and very fetid; sometimes pure blood is voided, with pieces of coagulated mucus, resembling bits of cheese; and, in some instances, a quantity of purulent matter is passed. In other cases, mucus matter, without any appearance of blood. From the violent efforts which are made in discharging the irritating matters, a portion of the rectum is sometimes forced beyond the verge of the anus, which, in the progress of the disease, proves a source of great trouble, giving rise to a persistent tenesmus, constant inclination to defecate, without the ability of voiding anything except vitiated mucus, or a small quantity of blood. More or less fever attend all these symptoms, which is either of a sthenic or asthenic type. If the symptoms run high, and are accompanied with violent irritation of the whole intestinal tract, great prostration of strength, putrid discharges; it is sometimes fatal. If the case is one of long-standing; if the patient labors under some organic disease, or if the constitution has become impaired from any cause or disorder, it is very apt to prove fatal.

*Pathology.*—Dysentery consists chiefly in inflammation, followed by



ulceration of the mucous membrane of the colon and rectum. Cases, however, occur, where the whole tract is involved.

*Treatment.*—In most cases, it is a good practice to begin treatment with an emetic of the C. powder of lobelia, then to follow with the neutralizing mixture and leptandrin, which should be continued until the symptoms subside; then the most active counter-irritation over the entire abdomen, first with a liniment, of equal parts of oil of stillingia, capsicum and solidago, then the irritating plaster. In order to aid this treatment, the vapor or warm-bath, then the diaphoretic powders should be given, so as to keep up gentle perspiration, without exciting nausea. By this treatment we often can cut the disease short.

A novel method of curing dysentery consists in the use of emetics, ordinary doses of ipec.; its action is speedy, certain, complete; the disease being quickly arrested. If the stomach cannot retain the remedy, a sinapism over the stomach should be applied. Should the vomiting be persistent, aqua calcis, gelsemin, opium, chloroform and other remedies, should be tried.

In dysentery, when the abdomen is hard, tense and painful to the touch, and the gripings are frequent and severe, the application of fomentations of stramonium or hops, over the abdomen, afford considerable relief; but should these not have the desired effect, and afford relief, active counter-irritation should be resorted to. The foot-bath is an excellent adjunct in treatment. To defend the inner coat of the intestines from the acrimony of its contents, to counteract attempts at evacuation, mucilaginous drinks, as solutions of gum acacia, in milk, barley, rice, and enemas of the same, medicated with gelsemin.

A very excellent mode of treating dysentery consists in giving leptandrin and euonymin, morning and night, with counter-irritation over the abdomen. At the commencement of an attack, it is improper to employ astringents; but, in the second stage, where the strength is exhausted, where we have a relaxed condition of the bowels, astringent and opiate remedies prove proper and beneficial, given in the neutralizing cordial. This is a disease in which the patient should have rest, not only from the frequency of the motions, but from the tenesmus. An admirable remedy here is, the hyosciamin, combined with gelsemin; a combination well adapted to the disease, and ought to be tried in preference to opium. In chronic dysentery, I have derived benefit from the following formula: *R*.—*Op*i, pulv.; ext. cinchona; tannin, aa.—*Misce*. Made into three-grain pills.

When the bowels have been effectually relieved, it often happens that there may remain a tender state of the rectum, which gives rise to a troublesome tenesmus; under such circumstances, suppositories are very beneficial. The remedies best adapted to cure dysentery are, gelsemin and crane's-bill, turpentine, nitro-muriatic acid, ergot, bismuth, rhein, &c.; and, for astringents, we can use those that are specially indicated: Port wine and beef tea; for a drink, lime-water and milk. A decoction of log-wood, with equal parts of the prickly-ash and witch-hazel, is a favorite prescription, and seldom fails to give relief. In the advanced and chronic stage of the disease, acidity is apt to prevail; then small doses of the sulphite of soda and chamomile have

proved of singular utility in many instances. The impaired tone of the intestines should likewise be restored by tonics, as the wine bitters, hydrastis and nux vomica.

The fever accompanying this disease sometimes is intermittent, protracted and complicated; in such cases, aconite and gelsemin, belladonna, euonymin, pulsatilla, ipec., combined with quinine, are indicated. In those cases where a dusky, sallow hue of the countenance, tenderness over the region of the liver, clayey appearance of the stools, sulphur, podophyllin, leptandrin, rhus radicans, ipec., &c.; and if we have an obstructed or diseased state of the liver, the irritating plaster should be kept constantly applied. We have derived great benefit from enemata of cold water, administered after each evacuation. In dysentery from cold, dulcamara, and xanthoxylin; in all dysenteries of a typhoid character, nux vomica, rhus, sub-nitrate bismuth, xanthoxylin, myricin, &c.; charcoal, in small doses, is of utility. In the first stage of dysentery, ripe fruits are proper; but in a more advanced period, where acid prevails, they should not be used; and, indeed, every species of food which tends to putrefaction should be carefully avoided throughout the whole course of the disease, as well as all fermented drinks; supporting the patient's strength by juice of raw meat, rice, arrow-root, gelatinous broths, milk, &c. During convalescence, wine, brandy, properly diluted, should be given; the brandy mixed with milk or arrow-root. When the inflammation is subsiding, the aromatic astringents: gallic acid, populin, erigeron. Convalescence is often retarded by want of appetite; for meeting this, we would suggest our wine-bitters, the juice of raw meat, pepsin, the extract of carnis, &c.

Patients recovering from dysentery should observe the greatest caution; regularity in their mode of living; should not eat solid food for some time; should be warmly clothed, as the disease is very liable to relapse from any fresh exposure to wet or cold. The importance of warm clothing, and the most thorough hygiene, in the cure of all bowel complaints, is very obvious. We would observe that warmth should not be a secondary object; on the contrary, it should be primary. Flannels should be worn next the skin; a flannel bandage should be worn around the abdomen, and, if necessary, the spice plaster or pulverized cinchona should be quilted in the bandage, as being the best means of confining heat over that part of the body which is the seat of the disease. Dysentery being contagious, precaution should be always adopted to prevent its spreading, by the exposure of bromine, or permanganate of potash, or phenol sodique in the apartment.

In this complaint, purgatives are often indicated. Of this class, the extracts of butternut, rhubarb or serpentaria. To evacuate the canal, to shield the abraded surface, as well as to give nourishment, take a tablespoonful each of fresh castor-oil and white sugar, with the white of one egg, adding essence or the juice of lemon; mix well, and give a tablespoonful every hour.

To control bloody discharges—powdered nutgalls, half a drachm; boiling water, half a pint; using about one-third for enema. If neces-

sary, repeat, gradually checking the discharges; treat for fever or other symptoms.

### CHOLERA MORBUS.

Frequent and violent discharges of bilious matter from the stomach and bowels, with painful gripings, constitute cholera morbus.

In our climate it is met with in all seasons of the year, although it is more apt to prevail in the summer and autumn, when there is excessive heat, or sudden transition from heat to cold; and the violence of the disease has usually been observed to be greater in proportion to the intenseness of the heat. These and other circumstances naturally induce us to conclude that cholera morbus is the effect of a warm atmosphere, producing some change on the liver and biliary duct, which change consists either in the matter of the bile being rendered more acrid, or of its being secreted in a preternatural quantity. In some instances, the disease can be clearly traced to obstructed perspiration, from food that has become acid upon the stomach, or has passed into the acetous fermentation, as unripe fruit; torpor of the liver, obstruction of the bile duct.

*Symptoms.*—It usually comes on with nausea, soreness, pain, flatulency in the stomach, acute griping pains in the bowels, succeeded quickly by intense and frequent vomiting and purging of bilious matter; heat, thirst, hurried respiration, and a frequent but weak and fluttering pulse.

When the disease is not violent, these symptoms, after continuing for a day or two, gradually cease, leaving the patient in a debilitated or exhausted condition; but when the disease proceeds with great violence, there arises great depression of strength, cold, clammy sweats, considerable anxiety, a hurried and short respiration, cramps in the legs, coldness of the extremities, and other symptoms of sinking, with an intermitting pulse, which quickly terminates in death.

*Diagnosis.*—Cholera morbus is to be distinguished from diarrhœa and dysentery by the matter which is discharged being pure bile, unmixed with blood and mucus, and scarcely any fæces. It may be distinguished from colica pictonum by the evacuations; for, in the latter, there is always a considerable quantity of bilious matter ejected by vomiting; still, the bowels remain obstinately costive.

*Prognosis.*—This must be unfavorable, when the evacuations upwards and downwards are accompanied by great prostration of strength, tympanitic abdomen, intermitting pulse, cold, clammy sweats, hurried respiration, hiccough, spasm of the extremities, or convulsions, but a gradual diminution of the symptoms, especially the vomiting, succeeded by sleep, or a gentle moisture of the skin may be regarded in a favorable light.

*Treatment.*—From the very irritable state of the stomach in the first attack of the disease, it is almost impossible for any kind of medicine to be retained on it; everything being rejected the moment it is swallowed. To relieve this irritation, and evacuate the redundant, acrid bile, give an emetic of the C. powder of lobelia, and follow this



with thirty grains of the bi-carbonate of soda. After emesis has been thorough, give teaspoonful doses of either the fluid extract of prickly-ash or *C. tincture cajeput*, every ten minutes, till a feeling of warmth is experienced, and the patient relieved. In addition to these means, stimulating applications should be applied over the region of the stomach, and, indeed, over the entire abdomen; first sinapisms, then fomentations. Warmth should also be applied to the extremities; first, the mustard foot-bath, then artificial heat. If the above fail, the aromatic tincture of guaiacum, given in the same doses, or the neutralizing mixture, with sub-nitrate of bismuth.

If prostration is extreme, wrap the patient up in a blanket, saturated with mustard, and give stimulants.

I have found the following also to be effectual: *Ry.*—Neutralizing mixture; tincture xanthoxylin; tincture leptandrin virg., āā ʒi.—*M.* Half a teaspoonful every twenty minutes, till the patient is relieved. If this does not quickly succeed, alternate with small doses of the white liquid physic, or the following mixture: *Ry.*—Camphor, grs. xii; capicum, grs. xii; oil peppermint, gtt. iii; morphia, gr. i.—*M.* Make chart No. X.; one every half hour.

The lungs and liver are the great decarbonizing organs of the body. The lungs are most active in cold weather, from the part they perform in generating animal heat. In summer, the liver is stimulated by the heat to increased action, and forms a large quantity of bile, which is required to perform important uses in the function of digestion. In order to have a perfect state of health, these organs must be in perfect harmony; for, if we have entire suppression of the function of the liver, we immediately have extreme congestion of the liver, stomach and intestines. This condition always leads to increased sensibility, and this leads to vomiting.

The most efficacious remedies in the treatment, after arresting the vomiting, are small doses of veratrum, nux, colocynthin, ipec., &c. The latter agent may often be relied upon when the vomiting is extreme.

In all cases astringents are contra-indicated, as they aggravate the complaint, by retaining vitiated bile in the intestines, which ought to be discharged as long as the morbid secretion from the liver continues. As the debility is usually very great, it is proper, as soon as the intensity of the disease is allayed, to begin with tonics and nourishment; for this purpose, hydrastis, cinchona, &c., will answer well, and the blandest description of food.

## ASIATIC CHOLERA.

This disease has raged with terrible effect over some of our cities; essentially the same disease that visited us in former times. A peculiar specific poison, originally developed by a peculiar train of circumstances, in the centre of a region containing all the elements for the generation and propagation of organic poisons, conveyed by visible and invisible channels over the various parts of the globe. In some places where it has visited, it remains but a short time; in others, it



has found a more suitable climate, as may lead to its centralizing itself as one of the endemics of the country. The poison can be conveyed, but the disease makes only a transient stay in places which furnish but little material for its growth and propagation. It manifests itself as a peculiar subtle poison, capable of being conveyed by currents of air from place to place, either dissolved in aqueous vapor, or in some other unknown manner.

Whether this infinitesimal, imponderable, morbid agent is generated during some peculiar condition of the atmosphere, from vegetable or animal matter, in a state of partial or total decomposition, or from some other source, is a matter of speculation. Like all other potent agents in nature, the particles of the poison are minutely diffused, easily absorbed, produce those specific effects which constitute cholera.

It is a disease that is easily recognized by copious secretion in the stomach and bowels, of a serous fluid, albuminous in character, free from acids and alkalis; its color is slightly yellowish, often perfectly transparent, resembling rice-water, containing white flakes, is seldom bloody, and is discharged from the bowels without effort.

The smell is albuminous, mouldy, sperm-like, fishy; taste insipid. Besides, there is a decrease or entire cessation of all the secretions and excretions—the tears, saliva, bile, feces, urine, perspiration, &c. The skin is cold, devoid of elasticity, presenting wrinkles, lead color. The mucous membrane is in the same state; the tongue and breath cold; the pulse is soft, the veins congested; the muscles exhibit tonic, sometimes chronic, spasms in the lower extremities and abdominal muscles.

Asiatic cholera varies greatly in its mode of attack, violence and duration. It may seize a victim in such a manner as to produce immediate prostration of strength, together with those symptoms which indicate an almost total loss of vitality, a sudden and cadaverous expression of countenance, small, imperceptible pulse, surface of a bluish color, cold, cramps in the calves of the legs and fingers, burning in the stomach and throat, extreme anguish or stupor, vomiting, diarrhoea, loss of power over the voluntary muscles. Other cases set in with vertigo, humming in the ears, oppression and burning pain in the stomach, nausea, vomiting, griping, purging of a liquid resembling rice-water, which is quickly succeeded by oppression of the chest, difficulty of breathing, cramp-like pains in the extremities and abdominal muscles, intense thirst, great loss of strength, bluish color of the lips, nails and skin; pulse almost imperceptible; hippocratic countenance; delirium; cold, icy skin; profuse sweats; weak, hoarse voice, husky, with eyes half open and fixed, with partial loss of consciousness. Some of the symptoms may be present in any given case, according to the constitutional, predisposing, or exciting cause which may exist.

*Cause.*—A specific poison.

*Proximate causes.*—Fear, sudden fright, nausea, grief, errors in diet, purgatives, cold, dampness, low grounds, crowded dwellings. The favorable circumstances are: cold climates, high elevation, free circulation of air; moisture in the atmosphere; an aggravation of the disease after rain.

*Predisposing causes.*—Middle age, chronic diarrhœa, plethora, impaired vital power, excess, &c.

Cholera may, with great propriety, be divided into *three stages*:

*The first stage* is characterized by premonitory symptoms, as irritability, languor, sleepiness, slow pulse, confusion of the head, deranged condition of the digestive organs; pain in the head, knees, loins; rumbling noise in the bowels; slight spasmodic twitching in the calves of the legs. Sometimes constipation prevails; sometimes slight diarrhœa; the appetite is impaired, thirst increased, pulse variable, being feeble and contracted, or full and strong. The tongue is furred, white or yellowish; there is a feeling of fullness, heaviness, burning distress in the bowels, accompanied with griping pains; and these symptoms, in some cases, may take several days to come on, or, by judicious treatment, may be arrested.

In the second stage, we have increased violence of the symptoms, with the true, painless, rice-water discharges and vomiting, and lasting from a few hours to two or more days.

Then cramps in the legs, and these speedily ascend to the bowels, chest, &c. These cramps are violent, painful, draw the muscles into knots, with twitching of the muscles of the entire body. The cramps now become regular, first affecting one set of muscles and then another, twisting the body in various directions. During this stage, the tongue is pale, moist, or covered with white mucus; the pulse is frequent or feeble, or may continue full and firm; the urine is scanty or suspended; the countenance is pinched and dusky, but at this stage little discoloration is observed except at the points of the fingers, around the nails, under the eyes; but, as the case progresses, we have a livid blue appearance. The respiration is hurried; great distress about the heart; thirst great, with an inward feeling of heat; the skin is covered with a profuse sweat; the extremities cold; the abdomen hot; and these symptoms may continue a variable length of time, and, if not relieved, will pass into the third stage.

At the termination of this stage we have the characteristic cholera voice, rough and hoarse, enunciation imperfect, owing to want of elasticity of the mucous membrane and spasmodic constriction of the larynx, resulting from the poison paralyzing the nerve centres. Always an aggravation of the symptoms near midnight, patient easier towards morning.

Before it merges into this stage the symptoms are worse. The *pulse* is very soft, easily compressed; the *skin* inelastic, cold, dry, smooth, pale, bluish-gray, wrinkles on the back of the hands, fingers; the general expression of the features is cadaverous, eyeballs sunk, indolent, glassy, pupils dilated; *tongue* cold, flat, heavy or blue; great distress at the pit of the stomach; *thirst*—first moderate, then unquenchable.

*Effusion of serum* begins first in the lower portion of the bowels; *secretions* are suppressed; breath cold; blood unnaturally dark and thick.

If the symptoms are not relieved, it gradually merges into the third stage. When there is an abatement of the vomiting; breath, nose,

forehead and ears cold; great indifference; consciousness remaining to the last; extreme prostration; the patient, lying on the back, sinks down to the foot of the bed; some return of warmth and moisture on the skin; more lividity; the pulse cannot be felt later, not even at the carotids or heart; eyes dull and glassy when spoken to; rarely vomiting and diarrhoea; later, the stools are involuntary; respiration labored, rattling almost ceasing before death.

*Pathology.*—Congestion of the viscera, especially the liver; bowels congested in some cases; the whole tube has a blanched appearance. Vessels of the mesentery full of blood. Epithelial layer destroyed.

*Prognosis.*—This is favorable in the first and second stages, when there is a gradual subsidence of the symptoms, cessation of vomiting and purging, reappearance of more natural evacuations, slight warm perspiration.

Unfavorable, if greatly exhausted by the rice-water discharges; if they are restless after vital warmth has returned; relapses are always fatal.

*General therapeutics.*—The general mass of remedies appertaining to the allopathic school are powerless before this scourge, and their best resources often hasten rather than retard the disease. Calomel and opium never succeeded; rhubarb and kino was superseded by sub-nitrate of bismuth, with no better results; cuprum, camphor and veratrum have never done good.

*Treatment.*—*First stage.*—If the malady appears with thin, watery discharges, violent thirst, slight fever, and if these symptoms are attended with coated tongue, vomiting, debility, C. powder of lobelia, followed with the neutralizing cordial, with a sufficient quantity of leptandrin to act upon the liver, with rest in the recumbent position, local heat over the abdomen.

If the symptoms are not relieved, and there are cramps in the limbs, capsicum and lobelia, given repeatedly, and alternated with tinct. camphor, cannot be excelled. The most thorough hygiene should be inculcated, also, cheerfulness, strict temperance.

*Prophylactic measures*, as fresh air; the avoidance of small, close, damp apartments, cheerfulness, using such diet and drinks as can be easily digested, substantial healthy food; avoiding acids, over-exertion, grief, fear, anger. In the first stage great benefit is derived from phosphoric acid, and diffusible stimulants, as prickly-ash and brandy.

*Second stage.*—Perfect rest in bed, perfect composure of mind, cheerfulness and confidence.

For diet, give bland nutritious food; as a drink, iced-champagne is the best; ice in small pieces; frictions to the abdomen, and the application of artificial heat, by hot sand-bags in the axilla and inside of the thighs. The medicine which has been found most serviceable, upon the whole, is a combination of capsicum, lobelia and xanthoxylin, or Thompson's third preparation is a positive specific in the spasmodic form of cholera. The remedy should be given in a few drop-doses every few minutes, and dry heat applied and persevered with until reaction occurs, warmth returns, and perspiration sets in. As



soon as reaction sets in, we might either omit the remedy, or, if the case still demands one, give Hunns' life drops. Prostration must be guarded against and prevented, if possible, by rousing up the sunken innervation of the ganglionic nervous system; for this purpose, xanthoxilin, capsicum and valerianic acid, exercise a direct stimulating action on the abdominal ganglia. The valerianate of ammonia is an excellent stimulant, rapidly enters the blood, and is peculiarly indicated. After the urgent symptoms are controlled, phosphorus is the remedy.

The remedies used with success by the Homœopaths were: camphor, veratrum, arsenicum, cuprum, hydrocyanic acid, &c.; veratrum, if the cramps were in the limbs; cuprum, if in the bowels; if collapse threatens, arsenicum. Aconite is often of utility, if there is strong excitement of the arterial system. The intense pain in the epigastrium is best relieved by the application of dry warmth.

The greatest reliance may be placed upon large doses of leptandrin. But if there exists tonic rigidity, spasm, tetanic contraction of all the arteries of the body, caused by the poison acting on the organic nerves, the sympathetic and its tributaries; the state of nausea relaxes spasm, the act of vomiting rouses up and stimulates; lobelia, capsicum, and xanthoxilin, are worthy of confidence.

From the beginning of the attack, the patient should be kept in bed, well covered, and hot sand-bags placed around him; diffusible stimulants should be given every five minutes, till warmth and perspiration return. Friction aids materially in restoring heat to the extremities. Ice in small quantities, often repeated, is better than drinks. But none of these measures have, in themselves, any power to control the disease. The spasm and difficulty are only removed permanently by exciting the proper action of the secretory cells of the liver, and no remedy acts so well as leptandrin.

## PERITONITIS.

Inflammation of the peritoncum is usually met with under three forms: *acute peritonitis*, *puerperal peritonitis*, *chronic peritonitis*. The various forms have certain symptoms in common, usually ushered in by all the symptoms of fever, as lassitude, irregular chills, succeeded by flushes of heat, headache, frequent pulse, uneasiness or pressure in the region of the stomach, nausea, loss of appetite. These symptoms are speedily succeeded or accompanied by a pain and tenderness in the abdomen, either confined to certain portions, or universally diffused over its whole extent. The abdomen is excessively tender, painful on pressure, even rendering the weight of the bed-clothes intolerable; but in some cases the pain is slight, from the commencement to the fatal termination of the malady. The tongue is moist, and covered with a white fur in the first instance, which soon becomes dark and dry in the centre, with red edges. The bowels are usually constipated. The pulse is commonly frequent, tense, wiry, corded. The countenance is anxious, indicative of acute mental and physical suffering. The patient lies with his legs drawn up, his head



and shoulders elevated, so as to relax the abdominal muscles, and his respiration short, performed almost entirely by the muscles of the chest.

In severe cases of peritonitis, the pain is diffused over the whole abdomen, aggravated by movement or by pressure; the abdomen is swollen and inflated with air; the skin is hot and pungent; the pulse is frequent and small; the stomach irritable; the breathing hurried; the face expressive of acute suffering.

Puerperal peritonitis is the form that occurs in females after confinement, and is known as puerperal fever. It does not differ much from the ordinary form, only in being very violent in its attack, and having a tendency to run its course with greater rapidity, rages as an epidemic, is very fatal if not properly treated. The lochia is suppressed as well as the secretion of milk, and all the other secretions are entirely suspended.

*Causes.*—Certain occult conditions of the atmosphere, undue exposure to cold, excessive physical exertion, injuries, labor, abortion, over-exertion when the system is weakened by previous disease, atmospheric vicissitudes, metastasis of rheumatism, gout, or other diseases.

*Treatment.*—In the treatment of acute peritonitis, I rely chiefly upon equal parts of aconite, gelseminum, belladonna and bryony; locally, a fomentation of stramonium over the abdomen, bathing, and acting gently on the secretions. If diarrhœa should occur, then ipecac., rhus, &c.; if cerebral symptoms, then belladonna. But the chief remedy that I depend upon in treatment, is the C. tincture of serpentaria; its peculiar properties are highly important. The action of the C. tincture of serpentaria on the cerebro-spinal nervous system is evident, because it renders the sensorium less impressionable, and the system less liable to be exhausted by the disease. Its action on the sympathetic and vaso-motor nerves is probably similar, as it will relax contracted arteries, and admit a freer transit of blood. It is also a sedative of the highest order, a diaphoretic and diuretic of no ordinary kind.

Get the system quickly under the influence of an alterative, podophyllin, irisin, and menisperm, the vapor-bath, alkaline sponging, thorough hygiene. The diet should consist of beef tea and port wine; every symptom quickly controlled.

## DIABETES.

This disease is usually ushered in by languor and debility, with a disinclination to motion or exertion; dry and harsh skin, constipation, great thirst, voracious appetite, accompanied with a defect in the process of chylification, gradual emaciation of the whole body, and a frequent discharge of urine, containing a large proportion of saccharine and other matter, which is generally voided in a quantity far exceeding that of the food or fluid introduced, are the chief characteristics of the disease. Persons of a broken-down constitution, and those who are in the decline of life, are most subject to its attacks; drunkards, and also those suffering from want and cold.

It not unfrequently attends cerebral disease, hysteria, dyspepsia, asthma; but it is always milder when sympathetic than when it appears as a primary affection. Diabetes, then, may be caused by strong, diuretic medicines, intemperance, excess, excessive use of acids, excessive labor, depressing passions, anything that tends to produce debility. It is sometimes hereditary. It has, then, been customary to recognize it under two forms: *diabetes mellitus*, in which the urine is of a fragrant smell, color and taste of honey; and *diabetes insipidus*, with limpid urine, not sweet.

The causes of both forms of the disease are very obscure, as is also the pathology of the affection. It may, however, be regarded as depending primarily on a disordered state of the digestive organs, in conjunction with a defect in the assimilating functions. It may, therefore, be correctly assumed, that the primary cause of diabetes consists in a morbid condition of the digestive and assimilative organs, which favors the formation of sugar from the starchy or farinaceous substances into the alimentary canal, and its absorption into the blood and urine.

Diabetes usually comes on slowly and imperceptibly, without any previous disorder; and it now and then arises to a considerable degree, and subsists long, without being accompanied with any evident disorder in any particular part of the system; the great thirst which always, and the voracious appetite which frequently occur in it, being often the only remarkable symptoms; but it now and then happens that a considerable affection of the stomach precedes the coming on of the disease, and that, in its progress, besides the symptoms already mentioned, there is great dryness of the skin, with a sense of weight in the kidneys, and a pain in the ureters and the other urinary passages. The temperature of the body is usually below the standard of health. The spirits are depressed; the disposition is equally indifferent to study or amusement, and there is evidently a decline of mental energy, with a loss of power of virility. Some morbid change in the alvine excretion always accompanies the diabetic habit; and costiveness is, perhaps, the most common of these; for, in some instances, the bowels have been so remarkably torpid, that even the most powerful medicines, in large doses, produced but a trifling effect.

It has been remarked that diabetes is often preceded or accompanied with a pulmonary affection; and we are told, by the best authority, that they do not recollect an instance of the disease which was not attended with some affection of the chest.

Under a long continuance of the disease, the patient becomes much emaciated, the feet œdematous; great debility arises, and an obscure fever, with all the appearance of hectic, prevails. In point of number, the pulse is very much diversified; in most cases it is quicker than natural, but sometimes it is below the common standard; but, whether it be quick or slow, it is generally such as to denote great debility in the system. In some cases, vision becomes very indistinct, and the patient is troubled with vertigo.

The urine, in diabetes, from being at first insipid, clear and colorless, soon acquires a sweetish or saccharine taste, its leading charac-

teristic; and, when subjected to experiment, a portion of saccharine matter is frequently to be extracted from it.

In some instances, the quantity of urine is much greater than can be accounted for from all the sources united. Cases are recorded in which from twenty-five to thirty pints were discharged in the space of a natural day, for many successive weeks, and even months; as the disease progresses to a fatal termination, we have hectic and night sweats. The thirst still continues, and is frequently intense; but the appetite is much impaired and capricious. Sometimes phthisis sets in, and runs a very rapid course; or diarrhoea, or the kidneys fail, and we have the patient dying of uremic intoxication.

*Diagnosis.*—In observing the progress of this disease, we perceive, in its early stages, derangement of the digestive apparatus, morbid appetite, distress in the stomach after eating, flatulent distention, acidity, eructations, nausea, heartburn, lassitude, debility. When it is fully formed, insatiable thirst, voracious appetite, hot and harsh skin, elimination of a large amount of saccharine urine. As the disease advances, clammy, white tongue, or clear and red; a peculiar hay-like odor issues from the body and lungs; pain and weakness, sometimes swelling in the loins; anxiety, peevishness, despondency, impaired memory, vertigo, &c., &c., and the passage of enormous quantities of urine. To determine whether it is diabetes insipidus or mellitus, an examination of the urine should be made. It is usually of a high specific gravity, 10.30 upwards.

*Prognosis.*—The prognosis in diabetes insipidus is favorable, but more guarded in diabetes mellitus.

*Post-mortem examination.*—In numerous cases no pathological lesion exists that would give the slightest assistance in forming an opinion of the pathology of the disease. It may be that the kidneys are smaller than usual, or increased in size, of greater or less density, of darker color and blanched, slightly increased turgescence and enlargement of the blood-vessels. Both the liver and the lungs are often affected.

*Treatment.*—A proper system of dietetics is an important therapeutical indication in treatment. We have a perverted action of the digestive apparatus, by which all the starchy substances consumed become converted into sugar, and thus afford material for the perpetuation of the malady. A rigid abstinence from everything of a saccharine nature should be insisted on, and, at the same time, a diet as rich as possible should be enjoined, consisting of abundance of beef, mutton, venison, fowl, game, fish, soups. A most auxiliary measure is a sea voyage, and frequent applications to the whole surface of the body of salt-water. The free use of ice, in small quantities, gradually dissolved in the mouth, will prove serviceable in allaying the extreme thirst which consumes the patient.

To assist the general medicinal treatment, gentle exercise on horse back, or in a carriage, friction over the skin with the flesh-brush, the wearing of flannel and warm clothing.

A great many remedies have been recommended in diabetes, the noted of which we enumerate, as—phosphoric, nitro-muriatic and

hydrocyanic acids, nux vomica, rhus radicans, belladonna, digitalis, conium, hydrastin, opium, uva ursa, ammonia, gallic acid, populin, iron.

At the commencement, before a special treatment is enjoined, tone up the impaired appetite either with the wine bitters, C. tincture cinchona, or the following: *R.*—Sulph. quinine, hydrastin, ʒʒ grs. xxx; extract nux vomica, grs. ii: Collinsonin, q. s.—*M.* To make thirty three-grain pills.

Then evacuations from the bowels should be promoted, either by tonic agents or enema. It is impossible to lay down a regular plan of treatment, as each particular case should be treated according to its indications. I have been successful, in some cases, with the iodide of iron; in others, with the sesqui-carbonate of ammonia—five grains every two hours; while in another grade, half-grain doses of the permanganate of potash is specific in its action. Sometimes turpentine will act like a charm, at other times alkalies will succeed, and still, in a larger number of cases, rennet will be the remedy. Opium and creosote have a powerful effect in diminishing the quantity of urine, but do not cure the disease; cinchona and cod-liver oil improve the general condition of the patient, and reduces the urine. The irritating plaster, one inch in diameter, should be kept continuously applied over the liver, and free suppuration encouraged. The most valuable of our concentrated remedies are, aletrine, populin, prunin, xanthoxylin, sanguinarin. Dry cupping the spine twice a week, and keeping up the use of a salt sponge-bath, and brisk friction should never be neglected.

Diabetes insipidus is easily arrested by getting a free action of the bowels and skin, and checking the urinary secretion with small doses of creosote or gallic acid, and alternating with some of the astringent diuretics, as uva ursa, buchu, chimaphilin, turpentine, cantharides.

Keep the patient in a room of moderate temperature, and give an emetic of lobelia and ipecac., and induce free perspiration for several hours; warm bathing to the body and extremities; mustard over the kidneys, to redden the skin; and apply the irritating plaster. Use the tonic and anti-diabetic formula: *R.*—Pulv. bayberry bark, ʒii; pulv. poplar bark, ʒi; pulv. hemlock bark, ʒii; pulv. golden seal, ʒii; pulv. nutgall, ʒi.—*M.* Barley-water, one pint. S. wine-glass dose every four hours.

Renew the above remedies, except the plaster, every four days. Diet simple: fresh meat, farina, rice, &c. Regulate the alvine discharges.

## DISEASES OF THE LIVER.

ACUTE ATROPHY OF THE LIVER is a most remarkable disease, consisting usually of a rapid and complete destruction of hepatic cells in every part of the gland. The most prominent causes are, pressure, grief, anxiety, alarm, fits of passion, venereal excesses, mercury, drunkenness, malaria, &c.

*Symptoms.*—In the incipient stage, headache, loss of appetite, thirst,



drowsiness, mental and physical depression, irregularity of the bowels, tenderness of abdomen, conjunctiva of a yellow tinge, skin jaundiced, and these premonitory symptoms may last two or three weeks, and then we have the confirmed, or persistent symptoms, viz: jaundice, ecchymosis, vomiting of matter, resembling coffee grounds, which is merely a bloody exudation. Irritability, despondency, followed by delirium, convulsions, stupor, coma, sordes on the tongue and teeth. Diminution of hepatic dullness, difficult micturation, urine loaded with bile; increase of jaundice, hemorrhage from nose, stomach, bowels, &c.

*Duration* from twelve hours to a few days.

*Treatment* is usually useless. The remedies most generally used are, podophyllin and colocynthin; nitro-muriatic acid internally, and applied over the liver as a counter-irritant. Stimulants if there is prostration; quinine, hydrastin and xanthoxylin.

CHRONIC ATROPHY OF LIVER does not in any way resemble the acute, resulting in most cases from an arrest of the capillary circulation through the gland, thereby diminishing its nutrition.

It comes on slowly and insidiously, imperfect digestion, flatulence, diarrhœa, or constipation, pale-colored stools, dry sallow skin, persistent wasting or dropsy, and exhaustion.

*Treatment.*—Avoid all saccharine, fatty, or rich food, or fermented drinks. Let the food be nutritious, warm clothing, thorough hygiene, daily nitro-muriatic acid-baths. Then put the patient upon special treatment to overcome the disease. The best remedies are *podophyllin*, *leptandrin*, *ox-gall*, *cinchona*, *nitro-muriatic acid*, *sulphur*, *sulphates of soda*, &c.

HEPATIC DEGENERATIONS and malignant disease are not uncommon.

If we suspect fatty degeneration, we must prohibit alcohol, sugar, starchy articles of food, or fat, but give plainly cooked animal food, inculcate exercise, alkaline-baths and medicines, as *sulphate of soda*, *hydrochlorate of ammonia*, *iodide potass*, &c.

If we suspect amyloid degeneration from the symptoms, treat it as laid down under that head. [For cancer of the liver, see cancer.]

Various morbid growths or tumors are occasionally met with in the liver. Cystic tumors, cavernous tumors, and other growths of a like character are not uncommon.

Tubercular deposit is rarely found in the liver.

HYDATID TUMORS occur in the liver, more frequently than in any other organ, and the removal of them by a spontaneous cure is not uncommon.

APOPLEXY OF THE LIVER is often the result of great congestion, induced by some morbid change in the blood, as in scurvy, purpura, &c.

HYPERTROPHY OF THE LIVER is characterized by an increase in the secreting cells, causing enlargement of the gland.

HEPATIC CONGESTION is met with under two forms, *passive and active congestion*.

PASSIVE CONGESTION results from some obstruction to circulation through the hepatic and portal veins.

It is common in valvular disease of the heart, in morbid states of the

lungs, &c.; it leads to diminished excretion of bile; the bile ducts become engorged with bile.

*Symptoms.*—Constriction and weight over the region of the liver; frequent jaundice, nausea, dyspepsia; scanty, high-colored urine, containing bile pigment, with traces of albumen, constipation, and hemorrhoids. Area of hepatic dullness, increased on percussion, and symptoms of cardiac or pulmonary disease.

*Treatment.*—Put the patient upon a mixture as follows: *R.*—Podophyllin, grs. x; leptandrin, grs. xxx; ext. taraxacum, grs. xx; extract nux vomica, grs. x.—*M.* Twenty pills, one every night; during the day give either sulphate of soda, or nitro-muriatic acid; keeping cloths saturated with a solution of either over the region of the liver. Plain but substantial diet, no stimulants.

*In active congestion*, the capillaries of the hepatic artery are chiefly affected. It is commonly caused by morbid matter in the blood; hot climates; deranged nervous influence; excessive eating and drinking, &c.

*Symptoms.*—Fullness and sense of tightness over the liver, with enlargement, pains about right shoulder, headache, loss of appetite, mental depression; irregularity of the bowels, nausea, bilious stools, latterly jaundice, &c.

*Treatment.*—Removal of cause, plain diet; and, for remedies, *podophyllin*, *leptandrin*, *euonymin*, *taraxacum*, *irisin*, sulphate of soda, mineral acids.

**HEPATITIS.**—Inflammation of the liver may be considered under a variety of heads. As *hepatitis*, inflammation of the peritoneal investment, or substance of the gland, or both; *cirrhosis*, a low form, affecting the areolar or connective tissue; *syphilitic hepatitis*, inflammation of the blood-vessels and gall ducts.

In simple inflammation of the liver, the morbid action may extend over the whole gland; or, may be circumscribed; it may lead to softening, acute atrophy, induration, or an abscess.

*Symptoms.*—Tenderness over gland, fever, prominent fullness, increased dullness on percussion, pain on pressure, cough, deep inspirations, inability to lie on the left side. Yellow tinge of conjunctiva, rarely jaundice, pains in right shoulder, and, if the left lobe suffers, pain in left shoulder.

The formation of abscess is ushered in by chills, or distinct rigors, hectic fever, gastric disturbance, pain, tenderness, fullness over the liver, prostration, diarrhœa, or dysentery.

*Treatment.*—Podophyllin, leptandrin and irisin, alternated with sulphate of soda; then nitro-muriatic acid, alternated with C. extract stillingia. Sponge frequently with water, acidulated with hydrochloric acid; fomentations of the same over the liver; complete rest in bed. The treatment of the other varieties does not essentially differ from jaundice.

**CIRRHOSIS.**—So called, because, on slicing the liver, it presents the grayish-yellow color of impure beeswax; *interstitial hepatitis*; *granular induration of liver*; *hob-nailed liver*; *gin-drinker's liver*. Chronic inflammation and hypertrophy of areolar tissue pervading and cover-

ing the liver. The gland becomes abnormally firm, and subsequently contracted; the contraction of thickened connective tissue causing the capsule to be drawn in, so that the surface of the liver has a "hob-nailed" appearance. As it is a common result of spirit-drinking, it is sometimes known as *gin-drinker's liver*.

*Symptoms.*—Few and obscure until effused fibrine begins to interfere with the flow of portal blood, and secretion and escape of bile. Slight enlargement of gland; as fibrous tissue contracts and lobules atrophy, the gland diminishes in size. Hypertrophy of spleen. Pain in right hypochondrium: indigestion, flatulence, constipation; occasional feverishness; dry and rough skin; unhealthy, sallow look. After an interval, debility with loss of flesh. An increasing contraction of effused lymph obstructs portal circulation,—ascites. Jaundice. Dilatation of veins in abdominal walls. Hemorrhage into stomach and intestines. Rarely, an attack of hemorrhage has constituted one of the earliest symptoms, and caused death before disease has been suspected. Increase of dropsical effusion. Death from exhaustion; or, from some intercurrent attack of pneumonia, peritonitis, jaundice and toxæmia, or diarrhœa.

*Treatment.*—*At commencement:* Disuse of all alcoholic drinks, coffee and highly seasoned dishes. Plain animal food. Sulphate of magnesia, soda, podophyllin, leptandrin, euonymin, irisin. Acid tartrate of potash and taraxacum. Iodide of potassium. Quinine and iodide of iron.

*When degeneration of hepatic cells has far advanced:* Nitro-hydrochloric acid, pepsine and nux vomica, rhubarb and bitters, inunction of hepatic region with compound iodine ointment.

*For checking hemorrhage:* Gallic acid, turpentine, cinnamon and nitric acid, aromatic sulphuric acid and opium, cold drinks, ice. Bladder of ice over abdomen.

## PARACENTESIS ABDOMINIS—TAPPING.

*Operation.*—Place the patient in a chair, in a sitting posture; pass a bandage, made of a sheet, folded about half a yard wide, around the abdomen; let it cross behind his back, and put the ends in the hands of two assistants, who must be directed to draw so as to tighten it as you desire, while the fluid escapes. It is well to have this bandage cover the whole abdomen, having a hole in it through which to operate. The surgeon should then make a cut a half or three-quarters of an inch in length, (according to the size of the trocar,) with a sharp lancet or bistoury, through the integuments, along the linea alba, two or three inches below the umbilicus. Then introduce a diamond-pointed trocar, covered with a canula, and pass it on into the cavity. Withdraw the trocar, leaving the canula in the orifice to conduct off the fluid. The trocar may be pushed in without the previous lancing; or the whole incision may be made with the lancet, and a blunt tube or canula introduced through the opening thus made. The fluid is received into a proper vessel, while the assistants are directed to draw gradually upon the bandage, so as to keep a firm

pressure upon the abdomen as the fluid escapes, lest, by too suddenly taking off the pressure upon the abdominal vessels, the blood settles down into them from the heart, and causes fainting; or even burst the coats of the vessels and cause fatal internal hemorrhage. The fluid being drawn off, the patient is put to bed in a horizontal position, the wound closed with an adhesive strap, and a bandage applied round the abdomen. If faintness occurs during the flow of the fluid, in spite of your bandage, you must stop the flow; lay the patient down, and wait a few hours, or, perhaps, a day or two, before the remaining portion of the fluid is evacuated.

## SURGICAL DISEASES OF THE ABDOMEN.

*Violent blows* on the abdomen, from obtuse substances, such as the passage of cart-wheels, spent shot, &c., will produce various results. They may cause severe concussion and collapse, which may speedily prove fatal, or may pass off without further ill consequences; or it may be succeeded by inflammation. Any of the above wounds may cause laceration of the bowels, or of the viscera, with effusion of blood or their secretions into the peritoneal cavity. This may be suspected if the patient complains of excruciating pain, radiating over the whole abdomen, with features pinched, tympanitic abdomen, pulse small and tremulous.

*Treatment.*—The patient must be placed at once in the recumbent position, the most perfect quietness enjoined. If the prostration is great, mild, diffusive stimulants, the local application of dry warmth to the surface; if the patient is retching, or exhibits a tendency to vomiting, give an emetic of lobelia and capsicum, and, as soon as reaction is wholly or partially established, resort to asclepin and gelsemin, fomentations to the abdomen of stramonium and hops; large doses of hyosciamin and lupulin should be given; sponge the surface, draw off the urine; support the strength, under the irritation, by small quantities of fluid nourishment—beef essence, milk punch, white of egg, and do not disturb the bowels, either with purgatives or enemas, for several days. As the result of contusion, we often have abscesses between the abdominal parietes; sometimes these abscesses occur idiopathically. The rule is, open early, because of the possibility of their bursting into the peritoneum.

**WOUNDS OF THE ABDOMEN.**—Penetrating wounds, and others, of the abdomen, may be ranged under four divisions, viz: 1. Simple wounds of the abdomen. 2. Wounds of the viscera. 3. Wounds of the parietes, with protrusion of the viscera. 4. Wounds in which some of the viscera are protruded and wounded likewise. In the treatment of simple wounds of the parietes, remove or sponge away any foreign substances or clots of blood; if the wound is large enough, gently introduce the finger, to ascertain that no part of the intestines is about to protrude; then close the wound with lead sutures, with strips of adhesive plaster between them. If the epigastric artery is divided, it must be cut down upon and tied.

Where the viscera is wounded, more especially when the wound is



small, it is often impossible to say whether the bowels are wounded or not.

WOUNDS OF THE STOMACH are recognized by their situation, depth of the wound, vomiting of blood, extreme depression and collapse, by the character of the matter that escapes from the wound.

WOUNDS OF THE BOWELS are known by the passage of blood with the stools, or by the fecal matter escaping from the wound, or by the symptoms of extravasation of their contents into the abdominal cavity; that is, most severe excruciating pain, radiating over the whole abdomen, from the seat of injury, and attended with signs of great prostration.

WOUNDS OF THE LIVER, if extensive, are, from its great vascularity, nearly as fatal as those of the heart. Small wounds are often recovered from. They are readily diagnosed, by their position, great collapse, followed by severe sickness, pain in the liver, sallow skin, high-colored urine, great retching, glairy, bilious discharge from the wound.

WOUNDS OR RUPTURES OF THE GALL-DUCT are almost invariably fatal.

WOUNDS OF THE SPLEEN are very fatal, from the great hemorrhage that follows.

WOUNDS OF THE KIDNEYS are attended with bloody urine. They are extremely dangerous, from hemorrhage or violent inflammation, with excessive vomiting and retching; and also by the profuse suppuration kept up by the passage of urine through the wound. Wounds of the kidney sometimes admit of treatment. If the wound is large, the edges should be approximated, sutures applied, and, over all, gauze and collodion. The patient should be confined in a recumbent position; aconite and gelsemin should always be given, also mild laxatives, frequent warm alkaline spongings, and avoid too much drink.

WOUNDS OF THE BLADDER are extremely dangerous, especially if communicating with the peritoneum, owing to the extravasation of urine. Indeed, unless there is an external wound through which it can escape, they are generally all fatal. The catheter should be constantly worn.

*Treatment of penetrating wounds of the abdomen.*—If the intestines protrude, and are neither wounded nor gangrenous, they should be freed from all foreign bodies adhering to them, and then returned as quickly as possible into the abdomen. For effecting this in the best possible manner, put the patient on his back, with his shoulders well elevated and knees drawn up, and, if necessary, dilate the wound for that purpose, return the bowel portion by portion, intestine before omentum. If the stomach and intestines, when protruded, are found to be wounded, the wound should be sewed up carefully with a fine needle and silk, by the continuous or glover's suture, in such a manner as to bring the edges into apposition, and to prevent all extravasation between them. Then the parts should be replaced, and the external wound closed. The aperture in the bowel will be united, as in other cases, by the adhesion of contiguous surfaces; and the silk employed in the suture will be detached by ulceration, and fall into the cavity. If any part of the bowel that is protruded be bruised or lacerated, or gangrenous, it should not be returned, but the lifeless

portion may be removed, and the two healthy parts sewed up, or else an artificial anus should be formed. Peritonitis, or inflammation of the peritoneum or abdominal viscera, is exceedingly likely to follow those wounds and injuries, and is easily recognized. The patient lies on his back, with his knees drawn up, he breathes solely with the thorax, not with the diaphragm or abdominal muscles; the countenance is anxious, the pulse small, wiry, resisting; severe throbbing pain, with great tenderness more or less widely diffused; a dry tongue, constant nausea or vomiting, and obstinate constipation. If the case is permitted to proceed to a fatal termination, the abdomen swells, partly from serous effusion, partly from tympanitis, the pulse becoming more frequent and quick.

*Treatment.*—The treatment of these cases does not essentially differ from peritonitis. Keep the patient at perfect rest, have him to lie on the wounded part, give large doses of aconite, gelsemin, veratrum and asclepin, in combination, vapor-bath daily, by means of warm bricks wrapped up in cloths saturated with alcohol, placed around the patient. Apply a blister on the entire abdomen, follow it with packs or poultices of stramonium, bathing the entire surface every three hours with strong ley-water, an occasional dose of comp. tinct. serpentaria; to keep up free perspiration, give a powder of the following every few hours. *R.*—Podophyllum, pulv., grs. xxx; nitrate of potassa, ʒi; bitartrate of potassa, ʒii.—*M.* Make ten powders. I have found occasional doses of chloroform very valuable as an anodyne; diet plain and unstimulating.

**ARTIFICIAL ANUS.**—This is a preternatural communication between the skin and intestine. It may be the result of penetrating wounds, or of abscesses, or of ulceration or mortification of the intestine, and sometimes it is made by art. The external opening is irregular, everted and red, and the surrounding skin excoriated. The aperture in the intestine adheres by its margin to the peritoneum, so that extravasation into the abdomen is prevented. That portion of the intestine which is immediately above the aperture, and that portion which is below it, meet at the artificial anus, at a more or less acute angle, and present two orifices—one by which matters descend from the stomach, and another which leads to the rectum. These two orifices are separated by a sort of crescent-shaped septum, formed by a projection of the mesenteric side of the bowel opposite to the aperture.

The consequences of this affection may be, that the patient may die of starvation, from the escape of the chyle, if the aperture is near the duodenum, or a portion of the bowel may protrude.

*Treatment.*—If the affection is recent, keep the patient confined to the bed, and the parts clean; the external opening may contract and cicatrize. If the opening is small, and the passage between it and the bowel some length, something might be done by compression, or by engrafting a piece of skin from the surrounding parts over the aperture; or by freshening the edges on each side of the aperture, and bringing them together by means of needles and the twisted lead-wire suture, or by the occasional application of the actual cautery or

caustic potash to the margin of the aperture. But if the loss of substance in the bowel is considerable, and the projecting septum large, the chance of a cure is very small indeed. A simple pad or compress may be worn over the aperture to prevent a discharge from it, or sometimes a hollow truss may be worn with advantage.

## HERNIA.

Hernia may be defined as a protrusion of any viscus from its natural cavity.

The formation of hernia is easily understood, where we consider that the abdominal viscera are subject to frequent and violent distention, from pressure from the diaphragm, and other muscles by which they are surrounded—a pressure which tends to force them outwardly against the parietes of the abdomen, consequently, if any part of the parietes be not strong enough to resist this pressure, some portion of the viscera may be forced through it and form a hernial tumor, externally. Besides, for the passage of the vessels and nerves, the muscles and their tendons have various apertures, which, from weakness, become so relaxed as to allow the viscera to protrude.

The muscles are imperfectly formed, and the viscera escape through unnatural apertures.

*Predisposing causes.*—Unquestionably weakness of the parietes of the abdomen is the grand predisposing cause. As we have intimated, some parts are weaker than others, especially about the inguinal and crural rings and the umbilicus, weakness from malformation and congenital deficiency; weakness from injury and disease, as abscesses, wounds, bruises.

*Exciting causes.*—These are, compression of the viscera, by the action of the muscles that surround them, violent bodily exertion—lifting heavy weights, from the immoderate straining of the patient, if he is afflicted with stone.

The viscera most liable to hernial protrusion are, the small intestines, omentum, and arch of the colon.

The following may be enumerated as the situations in which abdominal hernia is found. Its most common seat is at the abdominal rings, generally passing in the same course with the spermatic cord in the male, and the labia pudenda in the female.

This hernia is known under the names of inguinal hernia, serotal hernia, &c.

A hernia penetrating under Poupart's ligament, forming a tumor at the inner and upper part of the thigh. In this situation it is called femoral or crural hernia.

Another species is formed at the navel, by a protrusion through the opening, which was formed in the fœtus, for the passage of the umbilical cord. Similar protrusions take place through the tendinous covering of the anterior part of the abdomen, and these are known as ventral hernia. Others are named from the apertures through which they descend, as hernia foraminis ovalis, ischiatic, &c.

A hernia between the rectum and uterus is not uncommon, besides

the different forms of congenital hernia. Besides this division of hernia, according to its situation, it is also divided into several species, according to the condition of the protruded viscera, which may be *reducible* or returnable into the abdomen; *irreducible*, not returnable into the abdomen; *strangulated*, subject to some constriction, which not only prevents its return into the abdomen, but interferes with the passage of their contents and circulation.

The *sac* of the hernia is a portion of the peritoneum, which the protruded viscera push before them, in their escape, and which forms a pouch containing them. If it remains in its new situation long enough, it contracts adhesions to the surrounding cellular tissue, and, therefore, does not return into the abdomen when the viscera are replaced. If the hernia is not kept up, it increases in size; the sac distends, and increases also, partly by growth, partly by distention, slight laceration or unraveling, partly by fresh protrusions of the peritoneum. Sometimes it diminishes in thickness whilst increasing in capacity; sometimes it becomes thick, indurated, divisible into layers. The narrow part, which communicates with the abdomen, is termed its neck; it always becomes thickened, rigid, in consequence of the pressure of the muscular or ligamentous fibres which surround it. Sometimes the sac has two constricted portions or necks,—either because it passes through two tendinous apertures, as the internal and external abdominal rings, or because the original neck has been pushed down by a fresh protrusion. Instances have occurred where two sacs have protruded through one and the same aperture. Sometimes a hernia is destitute of a sac. This may happen if the protruded part is not covered by peritoneum; if it occurs from a penetrating wound; if it has been burst by a blow.

*Names* have been given to hernia according to their contents, as omental hernia, intestinal hernia, &c.

**REDUCIBLE HERNIA** is a soft, compressible swelling, appearing at some part of the abdominal parietes. If the patient stands up, it increases in size. Grasp it, and tell the patient to cough, and it dilates. When the patient lies down, or when properly directed pressure is made upon it, it diminishes or disappears. If the sac contains intestines, the tumor is smooth, rounded, elastic; flatulent croakings are occasionally heard in it; and, if pressed upon, the bowels return into the abdomen, with a sudden jerk and gurgling noise.

If, however, it contains omentum, the tumor is flattened, inelastic, flabby, unequal to the touch, and, when pressed upon, it returns without noise, and very slowly, the pressure requiring to be continued till it has disappeared.

A hernial sac frequently contains both intestines and omentum; and very often it is impossible to know which they contain by external examination.

*Treatment.*—The indications for the treatment of reducible hernia are, to replace the hernia, and prevent its return. The replacement of the hernia is to be effected by the taxis,—that is, by properly directed pressure. There are numerous methods of performing this; but the plan that is found most successful, is the following: put the patient on



his back, elevate both the shoulders and the limbs; have an assistant to knead the abdomen; knead the intestines well against the diaphragm; then draw the body of the tumor gently down with one hand, and with the thumb and two or three fingers of the other, steadily compress the neck of the hernia, with the view of causing the contained fluid to pass into the intestine, above the swelling—allowing the assistant to continue the kneading or manipulations.

When gurgling is heard, or the size and tension of the tumor is nearly gone, and there is reason to believe that the passage of the fluid has commenced, then, at the same time, keep up gentle pressure on the body of the tumor, without pressing it upward, and the possibility is that the hernia will be reduced.

If the body of the tumor is not drawn downwards, and kept so, the part of the gut, and neck around it, just below the lower orifice of protrusion, will be forced up, and doubled a little on itself, against the borders of the opening, and injury to the intestine; failure in reduction will be the probable consequence.

The next indication in treatment, is the use of some contrivance, such as a truss, to keep up continuous pressure.

If the patient is young, and the hernia has not existed very long, it is highly probable that the use of a truss or a compress will effect a permanent cure. But, in order to attain that desirable end, the following plaster might be kept constantly applied: equal parts of the extract of hemlock, white-oak bark, witch-hazel and mandrake. The aperture of the hernia, no longer the subject of distention, may become firmly closed, and the neck of the sac obliterated; still, it is better to keep up the action of the plaster and truss for some time, until an effectual cure is the result.

If the above is not sufficient for effecting a perfect cure, various other appliances are resorted to, such as puncturing over the neck of the sac with needles or a lancet, so that adhesive inflammation may be excited, and, from the effect of that process, a firm wall may be built up.

Another very excellent method of effecting a radical cure: having returned everything into the abdomen, explore the ring, to ascertain that no portion of the intestines protrude; apply a strong truss, to prevent the escape of any hernia, and if it be the inguinal, press the spermatic cord upward, on the pelvic bone, to prevent its being injured. Then a delicate trocar and canula,—the latter having inside of it a small syringe,—should be gently, but firmly forced through the integuments, with a rotary motion, to facilitate its progress, and pushed forward, till it enters the neck of the sac. Then withdraw the trocar, keeping the canula firmly in its place; then throw in, and lodge there, twenty or thirty drops of tincture of iodine. After this operation, apply a compress over the small aperture made by the trocar, slipping the truss over it. Enjoin on the patient confinement to bed for two weeks, in the recumbent position. In addition to the injection, some searify, with a tenotomy knife, the internal surface of the neck of the sac.

The wound made by the knife very much facilitates the subsequent

introduction of the trocar; it also aids, or promotes, adhesive inflammation, which is so desirable for the purpose of effectually building up a strong wall against the further descent of the intestines.

**IRREDUCIBLE HERNIA.**—A hernia is said to be irreducible when the protruded viscera cannot be returned into the abdomen, although there is no impediment to the passage of their contents or circulation.

A hernia may be rendered irreducible by an adhesion of the sac to its contents; by membranous bands formed across the sac; by enlargement of the omentum. Omental hernia may be irreducible by a contraction of that portion which lies in the neck of the sac.

Irreducible hernia may produce numerous inconveniences; the patient is liable to dragging pains in the abdomen, to occasional attacks of vomiting, which come on after food, or when he assumes the erect posture, and general constitutional disturbance, because the protruded bowel, being fixed, resists all distention, or upward movement of the stomach. These inconveniences will be greatly aggravated, if the patient increases in flesh, or becomes pregnant.

The protruded bowels, being deprived of the support naturally afforded them by the abdominal muscles, their contents are apt to lodge in them, and very frequently give rise to colic, or constipation, incessant retching, and other disagreeable symptoms.

The *treatment* of irreducible hernia is either palliative or radical. The former consists in applying a hollow bag or truss, which should firmly embrace the hernia and prevent additional protrusion.

The patient must avoid all violent exertions, as walking, lifting, &c., excesses in diet, and, by all means, constipation. The latter is by operation, cutting down upon the incarcerated bowel or omentum and relieving it, breaking up any adhesions that may exist, and treating the case otherwise upon general principles.

Irreducible hernia is most insidious in its course, and in the early stages its symptoms are not well marked. Every means should be adopted to regulate the bowels, as we thus prevent the occurrence of a tympanitic abdomen, vomiting, and the like.

**STRANGULATED HERNIA.**—Hernia is said to be strangulated when it is constricted in such a manner that the contents of the protruded bowels cannot be propelled onwards, and the return of its venous blood is impeded.

The causes of strangulation may be a sudden protrusion of the bowel or omentum through a narrow aperture, in consequence of violent exertion—a distention of the protruded intestine by flatus or feces, or tumefaction and congestion of the omentum, or mesentery swelling of the neck of the sac—spasm of the muscular fibres around it. The seat of the stricture is nearly always at the neck of the sac, but, in some rare cases, the bowel has been constricted by membranous bands, or by fissures of the omentum.

The symptoms of strangulated hernia are those of obstruction of the bowels and inflammation. The patient complains of flatulency, colicky pains, tightness across the abdomen, desire to defecate, and inability to evacuate, vomiting, first of mucus, then bile, and, lastly, chyle. The tumor becomes uneasy, tense, incompressible. If these

symptoms are not relieved, inflammation sets in, the neck of the tumor becomes tender, and this spreads, diffuses itself over the tumor and abdomen, both of which swell considerably. The expression of the countenance is very anxious, pinched; vomiting incessant; the patient restless and desponding in the extreme; pulse small, wiry, intermitting. After a while the constricted parts begin to mortify, the tumor dusky and emphysematous, and the patient is promptly relieved by death.

These symptoms are liable to great diversity, both in their rapidity and violence; the age, constitution, habits and temperament of the patient modify the termination.

The character of the hernia plays its part in the programme; for instance, if it has a large neck and been long irreducible, the symptoms of strangulation may last many days.

*Treatment.*—The indications of treatment, in cases of strangulated hernia, are, to return the intestine, or any portion of it that may not be irreducible, to divide any constricting part, if necessary, and to prevent inflammation.

In all cases of strangulated hernia an attempt should always be made to return the protruded bowel by manual operation, technically termed the taxis. Now, the best method of performing this is, to empty the bladder, put the patient on his back, on a hair mattress or table; raise the shoulders well, keep the thighs close together, bent toward the abdomen, so that every muscle, ligament, &c., connected with the abdomen, may be perfectly and thoroughly relaxed.

Have an assistant ready when the manual operation commences, to knead the abdomen well toward the diaphragm. Instruct the patient not to strain with the respiratory muscles. If the tumor is large, grasp it with the palms of both hands; gently compress it, in order, if possible, to squeeze some of the flatus into the abdomen; push it in the axis of the neck of the sac, and, at the same time, keep up the kneading, pushing well up from the neck of the sac.

This operation may be continued from a quarter to half an hour, if not irritable, but not so long if inflamed, and very probably a gurgling sound will be heard, which usually accompanies the return of the bowel into the abdomen. Too much force must not be employed, because we may bruise or rupture the viscera, or drive sac and all into the abdomen, or between the layers of the abdominal muscles.

It is well never to be satisfied with a partial diminution of the volume and tension of the tumor if vomiting remains unrelieved. It often happens that the taxis succeeds best when the abdomen is not so much relaxed.

If the taxis do not succeed, we are not to hang the patient up by the heels, but resort to certain remedies to produce relaxation; reduce the heart's action, &c.

*Lobelia* is one of our best remedies for this purpose; the simple infusion of it is far superior than any mode of depletion.

To lose blood enough to induce fainting, and to preserve the system in this state, till a hernia is reduced, is an expenditure of the vital fluid, a waste of strength, which will not be readily regained. The

warm-bath and warm fomentations may also be tried, but lobelia, in the treatment of strangulated hernia, is all that can be desired; it will do all that any remedy can do; it is our best, safest relaxant, and anti-spasmodic.

It may be given either by the mouth or rectum, and, under its influence, the bowel is very easily reduced, and by the free use of volatile spirits, internally and externally, the patient is soon restored.

HEMASTASIS, bandages or ligatures, placed firmly around the upper part of the patient's extremities to retard venous blood, and confine the blood there, will produce thorough relaxation; the unfavorable symptoms of strangulation will subside, the patient will fall into a quiet sleep and profuse sweat, after which the hernia will be easily reduced.

*Belladonna* is another valuable remedy in strangulated hernia; the ordinary tincture, in sufficient doses, diminishes the contractile force of the muscular fibre, lessens and arrests spasmodic constriction. The hernial tumor might be covered with the extract, rubbed up in glycerine. Enemas of belladonna are also useful.

Anæsthesia, either with chloroform or ether, the taxis, kneading the abdomen, are restored most frequently, and the reduction is usually easy. The hot-bath, if used, should be at 96°, F., and continued long enough to produce the necessary relaxation.

Coffee is often resorted to with good success. Opium is a favorite remedy with the Allopath.

Nicotine or tobacco has been successful in most cases.

Cold and pressure, at the same time applied to the tumor, by means of a freezing mixture in a bladder, or Richardson's ether spray, is useful in reducing inflammation, condensing flatus, and constringing the skin.

It is most applicable to scrotal hernia. Irrigation with cold water often enables us to reduce a hernia after the taxis has failed. Copious injections are very successful; best given by inserting a tube about nine inches up the rectum—that being about its length; the distention of the bowels by tepid water is both safe and easy; it must be done with force, and on the application of the taxis, the tumor is easily reduced.

The employment of the rectal tube is also highly recommended, introduced a considerable distance up the rectum, for the purpose of giving egress to the flatus contained in the intestine; its use frequently prevents an operation. Exhaustion, by means of an exhausting syringe, is also practiced through this tube with success. After a complete or partial vacuum has been made, gentle taxis being resumed, the tumor will speedily recede from under the hand. Nothing can excel the lobelia as a local application.

Strangulated hernia, if forcibly reduced, may be reduced in a mass, and symptoms of strangulation continue; reduced with the stricture unrelieved, the investing sac being returned with it.

In these cases, there is little to guide us but the symptoms, or it is possible a tumor may be felt at the internal ring, and it is possible



that by coughing or straining, the hernial tumor might be brought into the inguinal canal.

But if this is not accomplished, the patient unrelieved by any measures, then an operation must be resorted to; cautiously cutting down to the internal ring, introduce the finger into the abdominal cavity, and ascertain if any tumor of a suspicious character there exists; to seize it, divide any strictured portion and relieve the intestine.

Purgatives are not admissible remedies, being mischievous in sudden acute strangulation.

In old-standing cases, occurring with aged persons with large hernia, we are often justified in wanting some time to try the effect of remedies; but in acute cases, occurring in young, sanguine subjects, it may be laid down, as a general rule, that if the taxis, aided by other remedies, do not succeed, it is the safest plan, on the average, to operate.

The operation generally performed consists in opening the sac, dividing the stricture, and returning the intestine.

The after-treatment consists in keeping the patient in bed, in the recumbent position; apply a compress—a towel, for instance—over the site of the tumor, and be retained firmly in its place with a bandage, so as to prevent any protrusion from coughing, sneezing, or any accidental exertion.

If the bowels do not act in six or eight hours, you must not give purgatives; that old, absurd idea is exploded and abandoned. No doubt, it is satisfactory to find the bowels moved after the operation, but it is a question of importance whether we should give irritating remedies to obtain that result.

Let the bowels have *rest*—perfect *rest*; thickened, congested, in a state of inflammation, the returned bowel, in such a case, is not likely to be benefited by rough treatment, active aperients, irritants. Returned into its natural situation, after the stricture has been divided, it is best to leave it quiet; let it alone for some time, to allow the swelling to subside; allow it some time to recover.

INGUINAL HERNIA is that which protrudes through one or both abdominal rings. There are four varieties: the *oblique*, *direct*, *congenital* and *encysted*.

The *oblique* is the most common; it takes precisely the same route as the testicle takes in its passage from the abdomen into the scrotum. It usually begins as a fullness, or swelling, a little above Poupart's ligament, then passes into the inguinal canal, and, if it goes on increasing, it projects through the external ring, and descends into the scrotum of the male or labium of the female.

The coverings of the hernia may be enumerated as follows: The skin, cellular tissue, fascia spermatica, cremaster muscle, fascia propria, and the sac.

The internal epigastric artery is always internal to the neck of the sac. The spermatic cord is generally behind the sac, but, in old cases, the parts which compose the spermatic cord are separated by the tumor, so that the vas deferens and spermatic artery lie sometimes in front, sometimes on either side of it.

The *direct* inguinal bursts through the conjoined tendon of the internal oblique and transversalis muscles, just behind the external ring. Its coverings are the same as the oblique variety, except the cremaster, for it has no connection with the cord. The epigastric artery runs external to the neck of the sac. This hernia may, however, push the conjoined tendon before it, instead of bursting through it. The spermatic cord generally lies on its outer side.

The *congenital* hernia is a variety of the oblique, and is so called because that state of the parts which permits of it only exists soon after birth, a portion of omentum or intestines accompanies the testicle in its descent, and passes down with it into the very pouch of the peritoneum, which forms the *tunica vaginalis reflexa*, before its communication with the general peritoneal cavity has become obliterated. The sac of this hernia is consequently formed by the tunica vaginalis; its coverings, in other respects, are the same as of the oblique variety, and the protruded bowel lies in immediate contact with the testicle, and, if not replaced, generally adheres to it.

The *encysted*, or hernia infantilis, is only another variety of the congenital.

The protruding bowel pushes before it a sac of peritoneum, either into or close behind the tunica vaginalis, and this tunic and the sac adhere very closely together. This hernia, therefore, has, as it were, two sacs, namely: one proper sac, and another anterior, composed of the tunica vaginalis, which, in these cases, is very liable to be the seat of hydrocele.

The point of greatest interest to the practical physician is, the precise position of the epigastric artery in the oblique and direct.

In the oblique, the neck of the tumor inclines upwards and outwards, and causes a fullness extending up to the middle of Poupart's ligament. In the direct, it inclines rather outwards, and, when the hernia is reduced, the finger carrying integuments before it, can be passed straight back into the abdominal cavity. But, in old cases of hernia oblique, the neck of the sac is dragged down towards the mesial line, so that all distinction is lost.

*Diagnosis.*—Hydrocele may be distinguished from hernia by its commencing at the bottom of the scrotum, by its being semi-transparent and fluctuating, by its preventing the testicle from being clearly felt, whilst the cord can be distinctly felt above it, by not dilating in coughing.

*Whereas*, if hernia begins at the top of the scrotum it is not transparent; does not fluctuate; does not prevent the testicle from being clearly felt; it may obscure the cord, and dilate on coughing. But hernia may, and does often co-exist with hydrocele, the one beginning above, the other below. A hernia consisting of intestine, distended with flatus, is often as transparent as a hydrocele, so that, in taking the patient into a dark room, and holding the testicle between you and the light, all may be perfectly clear, still it is well to be guarded in our diagnosis.

HYDROCELE OF THE CORD, if low down, may be distinguished by its

transparency, fluctuation; but, if high up, it may extend into the abdominal ring, and receive an impulse on coughing, and our diagnosis may be obscure.

**VARICOCELE OR CIRCOCELE**, a varicose enlargement of the spermatic veins, often resembles hernia, inasmuch as it increases in the erect posture, dilates on coughing, but, it may be distinguished from hernia by its feeling like a bag of worms; and, although like hernia, it disappears when the patient lies down, and the scrotum is raised, still, it quickly disappears again, if pressure be made upon the external ring, though that pressure would effectually prevent a hernia from coming down. A testicle that has not come down through the external ring, into the scrotum, has frequently been confounded with a small hernial tumor, and compressed with a truss, to the great detriment of the patient.

*Treatment.*—Inguinal hernia, if reducible, must be kept up with a properly adapted truss. If determined to cure it radically, various modes of treatment may be resorted to with success.

A method of treating these cases, with which I have had uniform success, consists in pushing up along the inguinal canal, a fold of the integuments of the scrotum, in the form of a finger of a glove, and then securing this fold in its new situation, by transfixing it with a strong thread, by means of a needle contrived for this purpose.

Other modes of treatment, as subcutaneous incision, scarification of the interior of the sac, especially its internal aperture, the insertion of needles, the introduction of a canula in the form of a trocar, a small portion of gold beaters' skin into the serous tunic of the hernia, which is to be left there to excite an inflammation—an exudation of plastic lymph, and thus have a wall built up to firmly plug up the hernia, compression along the whole length of the inguinal canal, &c., &c. In performing the taxis for the relief of strangulated oblique inguinal hernia, the patient should be on his back; head, shoulders well elevated, limbs drawn upwards, and close together, the assistant kneads the bowels well towards the diaphragm; then pressure upwards and inwards should be made.

The *Operation for Strangulated Hernia*, if irreducible and strangulated, the following operation should be resorted to:

Though it is presumed that no one will attempt to operate in this case, who is not at least a tolerable anatomist, it may be well to enumerate, in order, the textures that will be found over the sac, and that must be cut through before succeeding in the object you have in view. The symptoms justifying or demanding a resort to this operation, were noticed when treating at length of the disease or accident.

In the most common form of the *oblique inguinal hernia*, we find, immediately under the skin, a strong condensed cellular tissue derived from the superficial fasciæ of the abdomen, in which ramifies the external epigastric artery; next there is the *fascia spermatica*; then a *tendinous layer* derived from the semi-circular bands, which connect the margins of the external abdominal ring; lastly, the *cremaster muscle* lies in immediate contact with the sac. The *internal epigastric artery*, it should be borne in mind, always lies *internal* to the

neck of the sac. (*Fig. 76.*) This exhibits the internal epigastric artery.

IN COMPLETE INGUINAL, OR SCROTAL HERNIA, the *spermatic cord* lies behind, (except the cremaster muscle, which was mentioned as being found in front of the sac.)

DIRECT INGUINAL HERNIA has the same covering, except the cremaster muscle, there being no connection in this with the spermatic cord. In this case, both the cord and the epigastric artery lie on the outside of the sac.



*Fig. 76.*

The operation is thus performed: The patient being placed in the position described for the reduction of hernia; the parts being shaved, and the skin held tense, the surgeon makes an incision through the skin, three or four inches in length, beginning above the neck and running along the course of the tumors. He then cuts through the successive layers, before described, by pinching up a small bit at a time with the forceps, and cutting horizontally through it under their points. The process is repeated until an opening is made to the sac, which can always be distinguished by its blueish appearance. The sac itself is to be opened in the same manner, by pinching up a little bit, and cutting through it horizontally. The small director is then inserted, and an opening made sufficiently large to admit the finger. The fore-finger of the left hand is introduced and passed up to the neck of the sac, to search for the strictures, which will generally be found at the internal ring; it may, however, be found at the external ring; or there may be a stricture at each. The stricture is to be dilated to admit the finger into the abdomen. This is done by what is called a probe-pointed bistoury, or a similar knife, made for the purpose, not edged quite up to the point, and only for a short space below it. The blade is passed up *flat-wise* along the finger, and pushed on through the stricture. Its edge is then turned upwards, cutting no more than is necessary to admit the finger. The cut must, in all cases, be made directly upwards, parallel to the lined alba, whether it be in direct or oblique inguinal hernia, so as to avoid the epigastric artery. If there be no stricture in the neck of the sac, one may be found in the body.

The stricture being thus relieved, and sufficiently dilated with the fingers, strict examination of the parts must be made; for, if firm adhesions have taken place, no attempt should be made at reduction; or, if the protrusion has continued so long that fatty deposits around the part have accumulated to too great an extent, the hernia must be allowed to continue. All you can do in such a case, is to let the wound heal, taking precautions against inflammation. Care must be



taken not to disturb the adhesions at the neck, when the bowels have mortified. The intestine must then be opened, and the mortified part taken out. The only chance is, then, that of an artificial anus.

**FEMORAL HERNIA.**—This hernia escapes behind Poupart's ligament, passing through the crural ring—an aperture bounded internally by Gimbernat's ligament; externally by the femoral vein; before, by Poupart's ligament, behind, by the bone. It next descends behind the falciform process of the fascia lata; it comes through the saphenic opening of that fascia, and, as its size increases, it does not descend down on the thigh, but turns up over the falciform process, and lies on the anterior surface of Poupart's ligament.

The coverings of this hernia are, the skin, superficial fascia of the thigh, loaded with fat, and divisible into an uncertain number of layers, and the fascia propria, a layer of cellular tissue derived from the sheath of the femoral vessels.

It is in general pretty dense about the neck of the hernia, but thin or even deficient on its fundus.

This hernia seldom attains a large size. It is much more frequently met with in the female than the male—obviously from the greater breadth of the pelvis.

*Diagnosis.*—Femoral hernia may be distinguished from the inguinal by observing that Poupart's ligament can be traced over the neck of the sac, and that the spinous process of the pubes lies internal to it, whereas, it is the reverse in inguinal hernia; the femoral also is much smaller, and more frequent in females.

**PSOAS ABSCESS** resembles this hernia in its situation, in dilating on coughing, diminishing when the patient lies down. The grand points of distinction are, it is more external, it fluctuates, and is invariably attended with disease of the spine.

Varix of the femoral vein resembles this hernia, as it dilates on coughing, and diminishes when the patient lies down, but then, if pressure be made below Poupart's ligament, the swelling quickly reappears.

**BUBO** and other tumors of the groin may always be recognized by their general character and history, and by their being unattended with abdominal disorder.

*Treatment.*—The reducible femoral hernia should be supported by a truss. This form of hernia is seldom cured radically. The irreducible should be supported by a truss with a hollow pad, or a common pad may be borne.

The femoral hernia, when strangulated, gives rise to many severe symptoms, much more so than the inguinal, because of the denser and more unyielding nature of the parts which surround the neck of the sac. The taxis, manipulating or kneading the abdomen in the usual manner, should be resorted to, the patient in the usual position, with the thigh of the affected side much rolled inwards and crossed over towards the other side.

The tumor should be drawn well downwards, from the anterior part of Poupart's ligament, and then be pressed with the points of the fingers backwards and upwards. If the taxis, however, does not soon

succeed, an operation should be resorted to, as no good can be gained by waiting too long.

For femoral hernia the following is the mode of operating: the skin is pinched up and divided by a simple incision, or, as many prefer, a crucial or angular one; the safest way of making it being to run a narrow knife through the skin, with its back toward the hernial sac. The superficial fascia of the thigh, with its fat, and the fascia propria must then be divided. Immediately beneath the latter, and contiguous to the sac, may be another layer of fat, liable to be mistaken for omentum. The sac itself is usually very small, seldom containing omentum or serum; and must be cautiously opened, as it embraces the bowel very tightly. The stricture will generally be found at the inner edge of the falciform process. This must be slightly cut, for a line or two only, in an *upward* and somewhat *inward* direction. If carried too far, the incision might penetrate the spermatic cord, or, in females, (who are more liable to this form of hernia from greater breadth of pelvis,) the round ligament of the womb. If that is not sufficient, a few fibres of Gimbernat's ligament are directed to be severed, although there is great danger of wounding the obturator artery, which often encircles this ligament. When the hernia is freed, reduction is to be effected, as directed in the former case.

UMBILICAL HERNIA.—This is most frequent in infants, soon after birth. It is not uncommon in females, who have been frequently pregnant, although, in many cases in adults, the hernial aperture is not at the umbilicus, but a little on one side of it. The coverings of this hernia are, the skin, superficial fascia and sac; they are always very thin, and not unfrequently the sac adherent to its contents.

*Treatment.*—If reducible, and the patient an infant, the best plan is to place a hemisphere of ivory with its convex surface on the aperture, and retain it there with cross strips of adhesive plaster, and a bandage round the abdomen; a pad of linen covered with sheet-lead answers well. But, on no account should the abdomen be bound too tightly, otherwise there will be danger of inguinal protrusion.

An adult should wear a truss or broad belt, with some contrivance to prevent it from slipping down below its proper level. For the irreducible a large hollow pad should be worn. The reduction of this hernia is usually easy. If it becomes strangulated, the use of copious, relaxing enemata, should have a fair trial before resorting to an operation.

VENTRAL HERNIA is that which protrudes through the linea alba, or through the linea semilunaris or transversalis, or through any part of the abdominal walls, except those which are the ordinary seats of hernia.

PERINEAL HERNIA descends between the bladder and rectum, forcing its way through the pelvic fascia and levator ani, and forming a tumor in the perineum. Vaginal hernia is a variety of this description.

LABIAL OR PUDENDAL HERNIA descends between the vagina and ramus of the ischium, and forms a tumor in one of the labia. It is distinguished from inguinal hernia, by the absence of swelling at the

abdominal rings. This hernia must be replaced, and a pad applied and kept firmly in its place.

**OBTURATOR OR THYROID HERNIA**, projects through that aperture in the obturator ligament, which gives exit to the artery and nerve. Ischiatic hernia protrudes through the sciatic notch.

**DIAPHRAGMATIC HERNIA** is generally a result of congenital deficiency, or accidental separation of the fibres of the diaphragm. But it may be caused by violent falls on the abdomen, or by violent pressure of any kind, capable of lacerating the diaphragm, and driving some of the bowels into the thorax. This form of hernia, if strangulated, will produce the usual symptoms.

## DISEASES OF THE RECTUM.

The veins of the rectum are very tortuous and numerous, and form, between the mucous membrane and the muscular coats of the intestines, quite a net-work of vessels. The hemorrhoidal veins unite in forming the interior mesenteric vein, which, with the superior mesenteric vein, the vein from the spleen, and the gastric vein, compose, by their union, the great portal system, described as supplying the liver with blood.

As the blood is supplied to the rectum from such various sources, in such abundance, the reason is very apparent why, in diseased states, blood is so frequently discharged from these vessels.

**FOREIGN BODIES IN THE RECTUM** sometimes require to be removed by art. They usually consist of small bones, pins, or other foreign bodies. The only point about them is to dilate the bowel with a speculum, use the proper forceps or lithotomy scoop for their removal.

**IMPERFORATE ANUS.**—This is a congenital closure of the rectum, and may occur in various degrees. It may be merely closed by thin, fine skin, which soon becomes distended with meconium; or the gut may terminate in a blind pouch, at any point from the sigmoid flexure downward, the anal aperture being altogether wanting, or the anus may be open for an inch or two; then adhesions, and, above all, the bowel.

*Treatment.*—If the end of the intestine can be felt protruding when the child cries, a crucial incision should be made without delay. If it cannot be felt, wait a day or two, so that it may be distended with meconium, and then a cautious incision should be made in the direction of the curve of the sacrum. If it succeeds in reaching the bowel, the aperture should be kept open by tents. But if we fail in reaching the bowel, or if the rectum appears to be altogether deficient, so that it is useless to attempt it, the only resource left is to form an artificial anus, which is sometimes successful.

**SPASM OF THE SPHINCTER ANI.**—This is known by violent pain in the anus, with difficulty of evacuating the feces. The sphincter muscle feels hard and resisting; resists the introduction of the finger. It may be caused by constipation of the bowels, disorder of the general health. It may be spasmodic, occurring in paroxysms; it may lead to thicken-

ing, stricture of the rectum. This is a most troublesome affection, when we thoroughly appreciate the physiology of the rectum.

In the rectum the fæces accumulate, and when they have accumulated, to a certain degree, they excite the rectum to contraction, and with it, a desire for expulsion. The escape of the fæces is controlled by two muscles, the external closing muscle, or sphincter, and the internal closing muscle, or sphincter, which is only a portion of the former. When the will submits to the internal, promptly to expel the contents of the bowels, several agencies operate together in their expulsion, which, if a spasmodic condition of the sphincter exists, leads to very distressing results.

In the act of defecation, the muscular fibres of the rectum contract; the diaphragm acts by contraction, which is followed by inflation of the lungs; the muscles of the windpipe close the epiglottis, which prevents expiration; the abdominal muscles contract, in opposition to the forcing down of the diaphragm, and compress the bowels, and then force them backward and downward; and the two elevatores ani press the rectum forward and upward, aiding in the expulsion; and thus the contraction of the normal sphincter is overcome.

*Treatment.*—In recent cases of spasm of the sphincter ani, I have derived the best results from dioscorein, combined with podophyllin and leptandrin, enemas of warm water, medicated with lobelia. Then put the patient upon special treatment, as nux vomica, hydrastin, quinine, leontodin. In more obstinate cases, a bougie should be passed daily; also, the enemas must be continued, and, if all remedies fail, the sphincter should be divided, and made to heal by granulations.

**HEMORRHOIDS.**—The hemorrhoidal diathesis consists in a congestive condition of the pelvic circulation, which involve not only the rectum, but the whole digestive tube; inflammatory, spasmodic or neuralgic affections. The patient is often treated for some other disease, as gastritis, gastro-enteralgia, flatulent colic, engorgements of the liver, obstructions of the portal system, and insanity. In other cases, there are, congestion, inflammation, or hemorrhage of the lungs or brain, structural disease of the bronchia, nervous headache, neuralgia, asthma.

The treatment which operates specifically on the affection, is one that especially relieves abdominal plethora.

Hemorrhoids is a very common and troublesome complaint; and any cause which operates on the rectum, in such a manner as to impair the integrity of its vascular and muscular structure, may induce the disease. The effects are, a permanent dilatation, or varicose condition of the veins, and a relaxation of the mucous membrane of the part, causing tumors of various sizes at the verge of the anus, and within the rectum; in some instances, a protrusion of a portion of the rectum itself.

Piles, then, are small, soft tumors, which form either within the rectum or around the anus. They begin as varicose enlargements of the hemorrhoidal veins, the irritation of which causes various morbid changes in the mucous membrane and cellular tissue. Sometimes there is a little varicose knot, with the cellular tissue, around the thickened



membrane; sometimes the blood in a dilated vein coagulates, forming a solid tumor, with the thickened cellular tissue around it. When they are within the rectum, the mucous membrane around them is liable to become excessively vascular, sometimes resembling erectile tissue. They are either external or internal, hard or soft, sensible or insensible. Their general appearance, in regard to color and size, will depend upon the amount of inflammation present, the causes that have been in operation, the length of time they have been in existence.

Some persons, entirely free from piles, are troubled with discharges of blood with the feces. This is apt to result when the blood-vessels of the abdomen are in a state of congestion from any cause. The veins of the rectum are the most dependent part of that whole system of vessels, which should convey their contents by the vena porta, through the capillaries of the liver. Any influence that retards the flow of blood through the liver, causes an engorgement of the hemorrhoidal veins.

**INTERNAL HEMORRHOIDS.**—These vary in size from that of a pea to that of a walnut; firm, of a pale or reddish-brown color, when indolent, but dark or bright-red when congested or inflamed.

They are found immediately within the sphincter, or at some distance from it, and may be attached by a narrow pedicle, or a broad, elongated base. They generally cause great inconvenience, by protruding at each motion of the bowels; and the hypertrophied vascular mucous membrane, covering them, is exceedingly liable to bleed, from straining and pressure.

**EXTERNAL PILES.**—These are met with in the form of a round, hard tumor, just at the verge of the anus, covered with skin and mucous membrane. These are called blind piles, because they do not bleed.

*Causes.*—Debility, or anything that relaxes the mucous membrane of the rectum; anything that produces fullness of the abdominal vessels, anything that impedes the flow of blood from the rectum, as luxurious living, sedentary habits, pregnancy, disease of the liver or lungs, tight lacing. The most common of these causes is habitual constipation, induced by the reprehensible practice of inattention to daily alvine evacuations.

The exciting causes are, the abuse of cathartics, anything that irritates the lower bowel, as aloes, sulphur, ascarides, horse-back exercise, long standing position, chronic diarrhoea, sleeping on feather-beds, lounging on sofas, &c.

*Symptoms.*—Piles are met with in two states, indolent and inflamed; when indolent, they frequently do not give much trouble, aside from their bulk and situation. When inflamed, they give rise to a long and serious train of symptoms, as vertigo, headache, coldness of the extremities, flashes of heat, heaviness, bloating of the abdomen, constipation, palpitation of the heart, weariness of the limbs, despondency, irritability, fullness of the parts in the vicinity of the rectum. loss of appetite, pains in the loins, eructation, itching about the anus.—a sensation as if there were a foreign body there. The location and character of the pains vary in different cases, being sometimes confined to the tumors themselves; at others, extending upward into the

intestines, or down the thighs. The pain may be itching, aching, throbbing, darting, shooting, constant, or only when at stool or sitting. These symptoms are frequently complicated with irritation of the bladder, frequency of micturition, pain in the back; and, in females, uterine irritation, with mucus discharge.

*Treatment.*—The great point in treatment is to efficiently remove the predisposing and exciting causes. Constipation is undoubtedly the grand cause, and should receive special attention, by having a regular daily evacuation of all the indurated fecal matter in the intestines. To secure this, suitable dietetic regulations. This is often, of itself, sufficient. Bread made of unbolted wheat; the daily indulgence in ripe, wholesome fruits; the free use of water as a beverage, instead of tea or coffee, will often act wonderfully well. If these simple means fail, then the daily use of an enema of cold water nothing can surpass. Also, the local application of clothes wet with cold water to the anus, and, in some cases, ice, inclosed in a piece of linen and applied.

The therapeutic agents which are entitled to our highest consideration, in hemorrhoidal affections, are: euonymin, rhein, frazerin, hydrastin, leontodin, leptandrin, nux vomica, podophyllin, rhus radicans, phosphorus, bryonia, hamamelin, nitro-muriatic acid, &c., &c.

If the patient is stout and plethoric, exercise, and a pill composed of juglandin, leptandrin and nux vomica, will be very useful; a remedy, or combination of remedies, capable of producing daily copious, soft evacuations, without griping or straining. The neutralizing cordial, and juglandin, podophyllin, hyosciamin, nux vomica, and extract taraxacum, make an excellent pill. The white liquid physic.

In the medicinal treatment of piles, I regard nux vomica as one of our best agents. In alternation with phosphorus, in cases of debility, it has no equal. The remedy, in all cases, should specifically meet the symptoms, as nux vomica when dyspeptic symptoms are present; phosphorus, cinchona, in debility; and so on with the other remedies. If to pregnancy, caulophyllin, pulsatilla and trillin. If they come on after diarrhoea, hamamelin, internally and locally, is unsurpassed.

*Local treatment* of piles is quite extensive; the most important is, perfect cleanliness. If the piles are internal, and protrude during an evacuation, they should be washed with some astringent lotion before they are returned, as a solution of the extract of hamamelis, or zinc; or smear them over with an ointment composed of galls, tannin and opium, or zinc and tannin. Veratrin ointment is very useful. Apply nitric acid, or the cantharidal collodion, and the perchloride of iron in solution; under this treatment they will shrink and shrivel up, and if there is the least tendency to hemorrhage, the iron will act well.

If there is a tendency to prolapsus, pressure will be of the utmost importance, either by a bougie or pad made to bear well against the anus.

If the preceding constitutional and local treatment fail, it has been the practice of some members of the profession to extirpate them by the knife or ligature; but this has been demonstrated to be unphilosophical practice, and the more advanced members of the profession are

now agreed on their destruction by means of some caustic—nitric or chromic acid I prefer; the latter is the best.

Chromic acid is a most powerful oxidizing agent, yielding half its oxygen to organic substances, and being reduced to a sesqui-oxide.

It is very convenient of application, inasmuch as it consists of a thick crystalline pap, which, if properly managed, does not spread beyond the prescribed limits; and, as soon as its erosive operation is finished, passes into a state of inert, pulverulent sesqui-oxide. It is a very efficacious agent for the removal of excreseences.

HEMORRHAGE FROM THE RECTUM is a frequent attendant of piles; and, for its special treatment, we would suggest the same remedies as in piles, and the use of injections of sulphate of iron, one grain to the ounce; a decoction of witch-hazel or matico; tormentilla, fleabane, hydrastis, are all useful. The tincture benzoin is striking in its effects.

RHAGADES.—Fissures, excoriations about the anus, produce great pain during the passage of evacuations, and, if neglected, may lead to spasm and stricture of the sphincter.

Alteratives, vegetable diet, strict cleanliness.

An astringent application, to which belladonna, lobelia and white pond lily are added, will likely be successful.

ABSCESSSES NEAR THE RECTUM are caused by the irritation of foreign bodies, caries of an adjacent bone, &c.; but they are usually due to the hemorrhoidal diathesis, the same causes as produce piles, and especially when that condition of things exist which accompany pulmonary consumption.

They are either large and deep-seated, or small and superficial. The deep-seated are attended with great pain, aching and throbbing; difficulty and pain in evacuating the fæces, and fever; on internal examination, a fullness or fluctuation may be felt. If these abscesses are let alone, a large quantity of matter may accumulate in the loose cellular tissue of the pelvis, and give rise to irritation, fever, pyæmia.

The treatment, of course, will consist of hot fomentations, frequently repeated, and poultices; and, as soon as matter is detected, free incisions.

PROLAPSUS ANI.—Protrusion of the rectum is really an inversion of all the coats of the intestine. The protrusion and eversion of the rectum is effected by the weight and pressure of the bowels above, aided by the contraction of the abdominal muscles in the act of defecation. Usually, when the sphincter is contracted, its strength is sufficient to resist the bearing down forces above; but, when the bowels act, the sphincter is relaxed, and the strain tells on its lateral adhesions. It is true that the rectum is provided with a strong coat of longitudinal fibres, but it is apt to become powerless if the bowels are long constipated; and the passage of a large mass of solid fæces is very apt to carry through an everted fold.

This will return spontaneously, but frequent repetition renders spontaneous replacement less and less perfect.

*Causes.*—Habitual constipation and frequent efforts to relieve it by

purgatives; the tenesmus of dysentery; the use of certain remedies which act on the rectum; the irritation of stone in the bladder causes involuntary straining, with prolapsus. This affection is common in infancy and old age, depending on a natural laxity and delicacy of structure.

It is common in debilitated persons. When it occurs in children, it is not usually serious; but, if neglected, it may terminate in inflammation or ulceration.

*Treatment.*—The tumor is easily returned. Place the patient for a few minutes in a warm hip-bath; anoint the protruded part with olive oil, and then apply gentle and uniform pressure. But, if the protruded bowel is so much inflamed that it cannot be returned, apply a poultice of equal parts of slippery elm, lobelia and belladonna, and in a short time it will be easily effected. It would be well to keep the patient at rest, and, when he gets about, to keep applied a pad and the T bandage.

Constipation must be guarded against, by diet and the use of the following pill: juglandin, rhein, leptandrin, hamamelin, and nux vomica.

To cure this affection radically, the bowels must be carefully regulated, so that there be no constipation or straining, and astringent injections of a decoction of oak bark, or hamamelin, a solution of muriated tincture ferri, or perchloride, or sulphate ferri, cold salt-water hip-bath every night, the occasional passage of a bougie, supported by the T bandage and pads. If none of these are successful, after a fair trial, try the use of nitric acid, wiping the acid down the protruded part in separate streaks or tracks, vertically from the sphincter down to the lowest portion of the gut, then replace the protrusion and allow no motion of the bowels for several days. Other remedies are used in like manner. Strychnine, one-sixth to one-third of a grain, on a blistered surface, around the anus, has also been successful.

**INTERNAL PROLAPSUS.**—Sometimes the upper part of the rectum becomes prolapsed and invaginated within the lower, giving rise to most of the symptoms of stricture. If we examine the canal of the rectum with the finger, we find it obstructed by a tumor, with the natural passage of the bowel in the centre.

The only treatment available is, a mild course of alteratives, tonics, astringent injections, the occasional passage of a bougie.

We occasionally meet with cases of stricture of the rectum, both spasmodic and permanent. The spasmodic is easily recognized by the great difficulty in evacuating the bowels, with spasmodic difficulty in the act of defecation.

In permanent stricture there is a chronic thickening and contraction of the mucus and muscular coat of the rectum, so as to form a ring encroaching on its canal.

It is generally situated at from two and a half to four inches from the anus. More rarely it is met with higher up. The symptoms are, pain, straining and difficulty in voiding the fæces, which are passed in small, narrow, flattened fragments, and, on a careful examination, if not too high up, it can be felt.



Irritation of the bladder and uterus, pains or cramps in the legs, headache, dyspepsia, &c., &c.

If it is unrelieved, it leads to ulceration of the rectum above the stricture, with a consequent aggravation of all the symptoms, and death from irritation.

*Treatment.*—Put the patient upon the same treatment as laid down for piles, then a gutta-percha bougie, of moderate size, should be introduced through the stricture every day, and allowed to remain for twenty minutes or half an hour. Its size should be gradually increased.

*Gradual dilatation.*—Instruments of every kind should be manipulated with great care, with the utmost gentleness; nothing is gained by forcing a large bougie through a stricture. The object, in all cases, is best effected by the repeated, gentle stimulus of pressure, so as to excite absorption, not merely mechanical dilatation.

**FISTULA IN ANO.**—This is a fistulous track alongside the sphincter ani.

It is extremely difficult to heal, on account of the perpetual contractions of the sphincter and levator ani, interfering with the union of its sides, and also because of the passage of fæcal matter into it from the bowel. The vicinity of the anus is very liable to fistula, not only from the functional derangement of the rectum, but from the laxity of the cellular tissue, and the liability of foreign bodies, such as fish-bones, apple-seed, impacted fæces, to get entangled in the numerous folds of the rectum, causing an abscess or ulcer, the mucous coat giving way, the foreign body dipping down through the cellular tissue. Habitual constipation is undoubtedly the grand cause. By an inattention to nature's calls, the fæces are allowed to accumulate in the rectum to an enormous extent, causing dilatation of the rectum, when any of the substances enumerated above, burrowing in the folds of the bowel, will naturally excite inflammation, and find their way, by an external opening, to the surface.

There are three kinds of fistula laid down in all surgical works:—Complete fistula, an open communication from the outside of the body into the rectum; one end of the ulcer connecting with the cutaneous surface, the other with the mucus.

The incomplete, or blind fistula, may connect by its open end either with the skin or the bowel, being thus either a blind external or blind internal. The true fistula, with hardened cartilaginous walls, pours out sanies instead of good thick pus.

*Treatment.*—There are three modes of treatment: *knife, ligature, local applications.*

The knife is the favorite of the old school; division of the sphincter muscle, so as to prevent contraction of that muscle for a time, and cause the fistula to heal from the bottom. Before resorting to the operation, the patient should be put in the best possible condition as regards health. The operation is an easy and very simple one: Place the patient on his hands and knees; introduce a flexible grooved director, the index finger of the right hand being inside of the rectum; after finding the internal orifice, divide all between it and the skin

There is no use in cutting through the bowel higher up than this opening; a piece of oiled lint should be placed in the wound, and the patient kept in bed for a few days, and perfect cleanliness enjoined. It meets with but poor success, and is not used by the eclectic profession.

*Ligature.*—There are several methods of applying the ligature. Pass a flexible grooved director first, then the chain of the ecraseur through the external opening; bring it out at the internal; withdraw the probe, hook on the chain, work the ecraseur, and crush the parts, say in the period of half an hour; or, instead of the above, introduce a wire of silver or platinum, and use, gradually tightening, until the ligature cuts through. All that is necessary is to keep the ligature gradually tightened.

When this process is going on, the parts, and every sinus, should be injected at least twice daily, with the alkaline lotion; and the sesqui-carbonate of potash should be applied, on fledgets of lint, to every part.

In the treatment of fistula, no remedy acts so promptly as the caustic alkali, and it should be continued after the ligature has cut its way; the alkali tending to destroy indurations and promote granulations. When, however, restoration is nearly complete, poultices, fomentations, and the alkalies may be dispensed with, and the black salve used until a cure is effected.

This is an excellent mode of treatment; the healing process keeping pace with the ligature, and being nearly complete when it comes away.

But the mode of treatment found so successful by American reformers consists neither in the use of the knife, the ecraseur or the ligature, but the use of stimulating injections, as the injecting the sinus morning and night with a solution of the caustic potash; or the red-hot platinum wire; nitric acid inserted into the sinus on a grooved silver probe, having been previously dipped in the acid; or make a paste of chloride of zinc with flour and water, and entangle this in a grooved probe, pass it up to the opening in the rectum, and leave it there.

The bowels must be carefully opened prior to the last application, and when the walls of the fistula are destroyed, and inflammation sets in, the cure is effected in a few days. In these cases it is well not to permit nature to evacuate the bowels, but resort to an enema every morning of cold water. After the necessary inflammation has been excited, and the caustic application dispensed with, confine the bowels for a week by the means of opium.

*PRURITUS ANI.*—A very violent itching of the anus is a troublesome affection, when it exists independent of a known cause.

The best plan of treatment is to keep the bowels open with podophyllin, euonymin and juglandin; to bathe the part frequently with a weak solution of phenol sodique or some astringent.

The other affections of the rectum, as ulcer, malignant disease or scirrhus, must be treated the same as in any other part of the body.

## DISEASES OF THE URINARY ORGANS.

**RETENTION OF URINE.**—The want of power to pass urine from the bladder may be caused by various morbid conditions, as stricture, permanent and spasmodic contraction of the orifice, stones and other foreign bodies; the presence of cicatrices, abscesses, tumors, fractured bones, disease of the prostate, palsy of the bladder.

The causes capable of giving rise to suppression or retention of urine are so various and diversified, and the circumstances attending the cause and progress of different cases so numerous, that we are able merely to hint at the more prominent symptoms.

The general symptoms of retention are, distention of the bladder, its elevation above the pubis; pains in the region of the bladder, with pressing desire and ineffectual attempts to urinate; anxiety, general uneasiness, and more or less constitutional disturbance.

Retention not unfrequently arises in females from a retroversion of the uterus. It must, in all cases, be treated according to its cause. The following remedies will meet the symptoms most admirably:

Lobelia, cannabis, uva ursi, solidago-virga-aurea, phosphoric acid, rhus radicans, turpentine, eupatorium, iodine, electricity, &c.

**URINARY ABSCESS.**—This is a frequent consequence of stricture; it is truly an abscess in the cellular tissue of the perineum, and is frequently caused as follows: a drop or two of urine escapes into the cellular tissue, in consequence of a slight ulceration or laceration of the weakened and dilated part of the urethra behind the stricture, and this small quantity of urine produces inflammation, so that an abscess forms, filled with dark colored pus.

*Symptoms.*—It usually occurs in a patient with stricture; the first difficulty perceived being rather more difficult in micturition than usual; he is seized with shivering, the skin hot, tongue brown, pulse fluttering, and, on examination, a deep, hard, painful, but not prominent swelling will be detected in the perineum—the scrotum may or may not be œdematous.

*Treatment.*—It should be opened the moment it is detected; this affords instant relief. It is also expedient to pass through the stricture, pass a catheter into the bladder and retain there; to the ulcer inject with the vegetable alkali and poultice, or the black salve, according to the indications.

**RUPTURE OF THE URETHRA AND EXTRAVASATION OF URINE.**—This is another consequence of old stricture. If this occurs, a catheter must be passed quite into the bladder. Then the urethra must be opened, the stricture divided, the catheter passed through the wound into the bladder, and allowed to remain several days; at the same time free incisions must be made into any parts that are swollen or emphysematous.

The urethra is frequently ruptured by blows or kicks, by other accidents that fracture the bones of the pelvis. The symptoms are usually plain.

The treatment consists in retaining a catheter in the urethra; incising the perineum if urine has extravasated.

**FISTULA IN THE PERINEUM.**—Urinary fistula signifies an opening from the perineum into the urethra, through which the urine dribbles when the patient makes water.

It is a frequent consequence of urinary abscesses and extravasation of urine.

*Treatment.*—The first and most essential measure is to restore the urethra to a healthy state, and to dilate any stricture that may exist by the bougie.

When this has been done, the fistula should be stimulated to granulate by the caustic potash, and the external opening should be frequently touched with potass, so as to allow it to heal from the bottom.

**CONTRACTION OF THE URETHRA**, following injuries, such as blows on the perineum, should be treated in the same manner as permanent stricture, that is, by bougie regularly passed, to keep the canal well dilated—gradual and persevering dilatation, and, if it is so contracted and impenetrable, medicated bougies of an ointment of iodide of potassium and belladonna; the catheter passed into the bladder and retained there for at least an hour daily.

**FALSE PASSAGE.**—This is often produced by carelessness, and in using too small a sound in pushing or forcing it out of the urethra, or by the misuse of strong caustic bougies. This is best treated by keeping a catheter in the urethra.

**HEMORRHAGE FROM THE URETHRA** is often caused by the rude introduction of instruments, the application of cold, the exhibition of erigeron and mur. tinct. ferri, and the treatment recommended under gonorrhœa.

**SOLID TUMORS.**—When these occur in the course of the urethra, compound or indurated follicles are very troublesome, by keeping up a perpetual discharge and chordee.

The use of a catheter, medicated with an ointment of iodide potass, and retaining it, is the best treatment.

**ACUTE AND CHRONIC INFLAMMATION OF THE URETHRA**, from whatever cause, do not differ in their symptoms, consequences and treatment, from gonorrhœa.

**FOREIGN BODIES IN THE URETHRA** may consist of calculi, or small bodies introduced from without, of clots of blood, of mucus, or in rare cases of fecal matter, or worms, &c., &c.

They may be, perhaps, pushed forwards by the fingers, by straining, and if brought to the orifice, dilatation may be used, or it is a good plan to press the thumb behind the foreign body, and then inject a good stream of lobelia infusion from a large syringe, so as to dilate the passage. But, if every means fail, it may be necessary to push it back into the membranous portion of the urethra, and extract it by an incision in the perineum.

Incisions into the urethra should, however, be avoided, for they are apt to lead to irremediable fistula, or, if near the scrotum, infiltration of urine.

**DISEASES OF THE PROSTATE GLAND.**—Acute inflammation of the prostate gland is generally a consequence of acute gonorrhœa. The



symptoms are, great weight, pain, throbbing at the neck of the bladder, tenderness in the perineum; on examination, per rectum, the gland feels swollen and tender, and there are frequent violent and exceedingly painful efforts to make water.

*Treatment.*—This will consist chiefly of rest in bed, hip-baths, anodynes, enemas, small doses of gelsemin, asclepin, and lupulin. The catheter should not be introduced unless necessary. [See gonorrhœa.]

ABSCCESS OF THE PROSTATE may be suspected if rigors and obscure swelling in the perineum follow the symptoms of acute inflammation. In any such case, the swelling should be freely punctured; for, if left to itself, the abscess may burst into the urethra. The catheter should be used every time the patient desires to make water, in order to prevent it from entering and irritating the gland. If the case is chronic, the habit scrofulous, stillingia, irisin, quinine, gold, phosphorus, and small doses of the extract of horse-radish or cannabis, to act as a gentle stimulus on the parts, will be of service.

CHRONIC ENLARGEMENT OF THE PROSTATE is extremely frequent in advanced life, and would seem to depend on the decay of nature rather than on age. The first symptoms are, slowness and difficulty in making water, sense of weight in the perineum and tenesmus. After a while the bladder becomes irritable, and the calls to make water are more frequent than before. If the patient cannot empty the organ completely, in consequence of the projection formed by the tumor, a portion of urine always remains behind and decomposes, becomes ammoniacal, sometimes a fit of complete retention ensues, and it is liable to be brought on by exposure to cold, excess in anything. As it progresses, the mucous coat of the bladder becomes irritated by the frequent strainings, as well as by the alkaline urine; it inflames, and secretes a glairy mucus.

The obstacle continuing to increase, the bladder is constantly distended; the urine perpetually dribbles away; the ureters become dilated; the kidneys become disorganized: the patient gradually loses strength and dies.

The only treatment consists in the use of tonics, as phosphorus, cinchona, rhus radicans, and introduce the catheter twice or three times a day, so that the bladder may be completely emptied.

CALCULI OF THE PROSTATE, are small, reddish-brown concretions of phosphate of lime, formed in the ducts of the gland. They cause obscure irritation of the neck of the bladder, and difficulty of micturition. They can often be detected by the finger in the rectum; it is possible to remove some of them by the urethral forceps, but the best thing to be done, is to keep the urethra well dilated with bougies, so as to favor their spontaneous escape.

SCIRRHUS OF THE PROSTATE is a disease of very rare occurrence, and the real nature of the disease is exhibited by the cancerous diathesis.

## DISEASES OF THE BLADDER.

Inflammation of the bladder (cystitis) commences like nephritis, with shiverings or chills, frequent pulse, hot, dry skin; anxiety, thirst, scanty, high-colored urine, nausea, vomiting, eructations and constipation. In a short time, the patient experiences deep-seated, lancinating pains over the region of the bladder, frequent desire to urinate, each effort giving rise to increased pain, anxiety and uneasiness. As the inflammation extends, the pains become more severe, extending to the perineum and sacrum; great tenderness of the lower part of the abdomen; micturition exceedingly frequent, attended with great straining, followed by an aggravation of the pain: a mucus or muco-purulent sediment in the urine, and great fever. If the ureters become involved, the pains are frequently felt as high as the kidneys.

Cystitis may terminate in chronic inflammation of the bladder, in resolution, suppuration or gangrene.

*Causes.*—Blows, concussions, falls, gravel, stone, abuse of diuretics, metastasis of erysipelas, rheumatism, gout, gonorrhœa, the use of irritating injections, retention of urine, introduction of catheters or sounds.

*Treatment.*—In cystitis, no remedy can be compared with aconite; it is always used with unbounded success; it not only regulates the circulation, but has a specific influence on the local affection, acting with efficacy and promptness, combine it with asclepin and gelsemin. The hip-bath, warm fomentations or poultices of stramonium. Act on the bowels with juglandin, leptandrin, bi-tartrate of potass; on the skin, with the vapor or alkaline-bath. If this treatment is continued actively, convalescence is rapid.

In chronic inflammation of the bladder, the treatment must necessarily be more varied, and, in addition to the above remedies, cannabis, triticum repens, marsh-mallow, uva ursi, &c., should be given with remedies to meet the special indications of each case. Injections into the bladder are very useful; the best is a very weak injection of very dilute nitric acid, thrown into the bladder once a day, is of great service when the urine is ammoniacal; throwing in an injection of decoction of poppies is very excellent.

Convalescence should be established upon cinchona, ferri, nux vomica, phosphorus, &c.

**IRRITABLE BLADDER.**—This affection arises from long-continued inflammation, which so impairs the function of the bladder, that the presence of a very small quantity of urine forces it to contract, and thus forms an incontinence of urine. It is often also the effect of mere nervousness, sympathetic of some disease of the kidneys, prevalent among elderly patients.

This affection often baffles our best treatment; still, the results of improved treatment exhibit gratifying results.

*Treatment.*—Our best remedies, scutellarin, barosmin, camphor, cannabis-sativa, nux, iron, cinchona, &c., and demulcent drinks, of which water-melon seed is excellent.

**PARALYSIS OF THE BLADDER.**—This may occur under a great variety of circumstances; it may be caused by injury, disease of the head and spine,—a symptom often present in fevers, as typhoid; it may be caused by injuries; occurs occasionally in a spasmodic form, in nervous, sedentary persons.

The *symptoms* are, retention of urine; that the patient cannot make water, or the water dribbles away without his being able to hold it.

The diagnosis of retention through palsy, from retention through stricture, is easy. The retention from palsy comes on quickly; there is no obstacle to the introduction of the catheter.

*Treatment.*—It must be treated according to its cause; the remedies most useful, and from which the best results are obtained, are, phosphorus, rhus radicans, xanthoxylin, scutellarin, aconite, belladonna, lobelia, nux vomica, turpentine, arnica, electricity, and counter-irritation to the loins.

**INCONTINENCE OF URINE.**—Various irregularities in the flow of urine occur both to the adult and youth. The functions of the kidney are liable to be impaired, as well as the bladder to retain the secreted urine. If the loss of voluntary power over the muscles concerned is total, the urine continues to dribble away as fast as secreted, being thus a trouble and annoyance. If the loss of power be only partial, the urine can usually be retained until a given amount is accumulated, when the patient is suddenly forced to yield to the pressing demand. In other instances, the incontinence is troublesome only during sleep.

Complete enuresis may be caused by paralysis of the sphincter of the bladder from constitutional causes, from external injuries, peculiar deposits, &c. Incontinence is common among children, and is particularly troublesome in the night, during sleep. It is undoubtedly associated with debility, or irritation of the neck of the bladder, originated by acrid urine, gravel, the irritation of worms.

*Treatment.*—The following remedies are used with success: tinctures of cannabis indica, cantharides, nux vomica, pulsatilla, rhus.

For the cure of enuresis, resulting from lithic acid or gravel, benzoic acid and alkalies are of great utility.

For the cure of the paralytic form, recourse should be had to phosphorus, rhus radicans, scutellarin, nux and iron.

For that intractable form in children, the best remedies are, tinct. belladonna, iron, cinchona, and the irritating or strengthening plaster over the lumbar region of the spine. When from external injuries, or the irritation of calculi, arnica, pulsatilla, rhus, gelsemin, the sulphate of hydrastin, the cold sitz-bath. Hygiene should be thorough, and every means resorted to to tone and invigorate the system.

**INFLAMMATION OF THE KIDNEYS.**—Inflammation of the kidneys commences with the ordinary febrile symptoms—slight chills, hot, dry skin, thirst, frequent and hard pulse, with deep-seated, aching pain in the region of the kidneys, which soon becomes acute and pulsative; urine scanty and high-colored; the bladder irritable, so that there are frequent attempts at micturition; inability to lie on the diseased side; severe pains upon rising to the erect posture; colic

pains in the abdomen; pressure may not cause pain, but any motions that call into exercise the deep-seated dorsal or lumbar muscles excite intense pain. The left kidney is most frequently affected, and when the inflammation has thoroughly set in, the pain is violent and lancinating. The pains extend along the uterus to the bladder; the urine becomes scanty—it may be, bloody, purulent, red and watery; there is nausea, vomitings, eructations, flatulence, constipation; pains in the rectum, from contiguous sympathy; tenesmus, retraction of the testicle, numbness of the thigh.

The *terminations* of nephritis are, resolution, suppuration, induration, scirrhus or gangrene. The duration of the acute stage is from six to nine days. Its termination in resolution is indicated by a gradual return of all the functions to a more healthy state, as indicated by the increased secretion of urine, subsidence of pain, ability to lie on the affected side.

If suppuration has set in, the pains become less severe; there are chills, or shiverings, dull throbbing pain over the region of the kidneys, pus in the urine, numbness and weight in the affected side. The pus may be discharged by the ureters into the bladder, or it may find its way between the lumbar or internal crural muscles to the thigh, by ulcerations into the cavity of the spleen or colon, and it may burst externally.

*Causes.*—Injuries, strains from violent exercise, the irritation of calculi in the kidney; sudden checks to the perspiration from cold; abuse of alcoholic beverages, medicinal or poisonous substances which operate specifically upon the kidneys.

*Treatment.*—The external application of cloths, wrung out of cold water, are of great service, if the case is acute, but if not acute, Ferriinch's method, and the irritating plaster over the region of the kidneys.

The disease requires energetic treatment, and it is well to act freely on the skin and bowels. The alcoholic vapor-bath daily, a cathartic, composed of jalapin, eupatorin and bi-tartrate of potass; if the nausea and vomiting is great, give an emetic of the C. powder of lobelia. Then have recourse, as quickly as possible, to aconite and gelsemin, and continue till the febrile symptoms have subsided; if the case is a violent one, alternate with asclepin and cannabis. If the inflammatory action is light, lancinating pain, lobelia is excellent; it equalizes the circulation, subdues inflammatory action in the kidneys, and restores its function. Nephritis can almost always be controlled by aconite, gelsemin and asclepin.

As long as the acute stage continues, diuretics are not admissible, but as soon as the inflammation is controlled, mild unirritating diuretics are attended with good results, as infusion of althæ, verbascum, galium aperine, and, as soon as possible, tonics. All through the case, keep the bowels free, and the skin active, by frequent alkaline sponging. Often, by severe pain, the patient will not be kept in a quiet position. In emergency, let the patient sit in a wash-tub of warm water, in which posture give the emetic to free vomiting, which will quiet him for a short time, at least, so as to remain in bed, applying



vapor to the feet, and a hot steaming brick to the loins, and, in bed, so lay him as to press the painful part on the hot steaming brick or stone. Give a full dose of sudorific powder, or give comp. tinct. serpentaria, a teaspoonful in warm water, every thirty minutes.

Should the above remedies fail, give opium in two-grain pills, one every hour until relieved; then rub the back well with alcohol or tinct. capsicum, or ginger, and apply the irritating plaster. Then take cream of tartar, one ounce, nitrate potassa, half a drachm, well incorporated together in the mortar; divide in four powders, give one every two hours. If this fails to increase and change the urine, and to move the bowels, increase the powders.

CHRONIC INFLAMMATION OF THE KIDNEYS, is generally a long-standing disease of the urethra and bladder, and these become diseased partly from mechanical irritation, partly from sympathy, partly from participating in that general degeneration of the function and structure of the body, which is sure to occur when any one important function is long and seriously impeded. The symptoms are easily detected, and the treatment does not essentially differ from what we have laid down under Bright's disease.

ALBUMINURIA.—This form of disease of the kidneys, usually known as Bright's disease, is met with under three heads. 1. *Inflammation, acute or chronic.* 2. *Waxy degeneration.* 3. *Fatty degeneration.*

1st. THE INFLAMMATORY FORM.—This may be acute or chronic. The first is generally induced by all those causes which excite inflammation in other internal organs, and is ushered in by rigors and febrile symptoms, and accompanied by pain in the lumbar region, and the phenomena peculiar to nephritis. The chronic form may follow the acute, may come on more slowly and insidiously, as the result of the same causes, or proceed so imperceptibly from causes which may have escaped observation, that the occurrence of dropsy, more or less extensive, may be the first symptom which excites attention. Testing the urine chemically, it is found to be albuminous; on examination, microscopically, various kinds of casts, with epithelial cells, blood corpuscles, different salts, &c.

*Post-mortem.*—Congestion, ecchymosis, discoloration, extravasation of blood, atrophy, disease, &c.

2d. WAXY FORM.—This form of the disease is generally chronic, and, for the most part, occurs with, or accompanies the scrofulous, or tubercular diathesis. Dropsy, and a peculiarly cachectic, emaciated look, constitute its prominent symptoms, and the urine, as the disease slowly progresses, becomes more and more suppressed, death taking place by coma-uræmic intoxication.

The sediment is usually small, and presents pale casts of the tubes, with a few epithelial cells, usually colorless and transparent. Not unfrequently, at an early period, desquamative casts, fibrin cells, &c.

*Post-mortem.*—On examining the kidneys, which have undergone waxy degeneration, we find that they are more dense to the feel than natural; sometimes smaller, sometimes larger, of a color resembling various shades of dirty beeswax, or a light fawn tint. The nature of

waxy degeneration is evidently some change in the chemical composition of the structure affected.

**3d. FATTY FORM.**—This may be a result of inflammation, but it is frequently produced independent of it; the progress of the disease is chronic; it is not so frequently associated with scrofula or tubercle, but it occurs in individuals more advanced in life, who suffer from cardiac and bronchial affections. It is very prevalent among the intemperate. It is frequently associated with fatty degeneration of the heart and liver. Dropsy, with persistent albuminuria, are constant symptoms, and the sediment is loaded with casts of the tubes of the kidneys, containing oil granules and granule cells.

*Post-mortem.*—On examining the kidneys of individuals who have died of this form of disease, we observe the tubes more or less obstructed by fatty granules, which have gradually accumulated in the epithelial cells of the tubes: These separate, and even burst, liberating the contents, and in this way obstruct the tubes, compress the secreting and surrounding textures. Gradually, the blood-vessels are so compressed, that the organ itself looks bloodless, and of a light fawn or dirty-color. The fibrous texture is occasionally hypertrophied, causing contractions round the tube, thus causing irregularities on the surface. Occasionally, fatty granules scattered over the cortical substance, accumulations of fat, &c.; consequent pressure and obstruction, rendering them incompatible to the performance of their function.

These *three forms* embrace essentially the pathological characteristic of *Bright's disease*.

These lesions may be met with separately or conjoined; one part of the kidney may be congested or inflamed, whilst another is fatty; or, we may have the fatty and waxy conditions united. All these alterations, by interfering with the secreting functions of the cells, more or less impede the excretory powers of the kidneys, and, if allowed to exist, ultimately tend to overload, or surcharge the blood with effete elements, which ought to be discharged with the urine; at the same time, by causing more or less congestion of the vessels, or by pressure on the malpighian bodies, and obstructions of the tubes, a serous effusion takes place, the albumen of which, passing into the urine, communicates to it that property of coagulability which constitutes its pathognomonic character.

*Diagnosis.*—The diagnosis of Bright's disease of the kidney, is dependent on three things. 1st, *Symptoms*; 2d, chemical, and, 3d, microscopical examination of the urine.

*Symptoms.*—In the acute forms, pain in the lumbar region, high-colored urine, and other indications of nephritis, followed by dropsy; and in the more chronic forms, the occurrence of dropsy, frequently without the renal symptoms, are the principal symptoms. But these symptoms are vague, uncertain, until an examination of the urine, both chemically and microscopically, is obtained.

**CHEMICAL EXAMINATION OF THE URINE.**—In testing urine it should be *neutral*, neither acid nor alkaline; then heat, and nitric acid should be employed. Heat alone frequently separates earthy salts, which,

to the eye, may resemble a slight cloud of albumen—and nitric acid alone frequently throws down a precipitate of uric acid, where urate of ammonia is in excess. But, if the coagulum produced by heat, also resists the action of nitric acid, we are pretty sure that albumen does exist. The presence of albumen in the urine, does not essentially constitute Bright's disease. It may accompany cystitis or hematuria; it may follow the action of a blister over the kidneys; it may result from improper medication, as mercury, errors in diet, dyspepsia, &c. In all such cases it is temporary, and does not exhibit the diagnostic character of *persistence*.

In the *microscopical* examination, allow the urine to stand a few hours; then pour off the supernatant liquid, and put the turbid sediment into a test-tube, settle, and pour off; the precipitate or sediment to be then put under the microscope. The objects brought into view are very various, comprising different salts, cells, fungi, and casts of tubes. But the chief diagnostic elements in Bright's disease, may be considered to be the separate casts of the *tubuli uriniferi*. These are of four kinds; *exudative casts*; *desquamative casts*; *fatty casts*; and *waxy casts*.

Clinical investigation has not yet determined the exact significance of these casts. Although it would appear that the exudative casts indicate the most acute form of the lesion—the desquamative, a sub-acute form, the fatty, a chronic lesion, and the waxy, a lesion destructive of the tubular textures. But as all these different changes may be going on in the kidney at the same time, we may and do find these various casts mingled with each other in various proportions, combined with other structural elements. The predominance in number of one kind over another, serves to guide us to a tolerable correct conclusion as to the change going on in the renal organs. In addition to the elements occasionally met with in the urine, there are two products found which should never be overlooked, namely: *tyrosin* and *leusin*; these are found in the urine in certain diseases of the liver, especially atrophy of that organ.

*Treatment*.—The acute forms of Bright's disease should be combated externally, either by dry cupping over the region of the kidneys, or the application of Firminch's method, followed with equal parts of oleum capsicum and con. tincture veratrum, and these might be advantageously followed by the irritating plaster; if these remedies are not convenient, warm fomentations, say of either hops, or stramonium, or conium, and, internally, tonics, diaphoretics, cathartics and diuretics.

The chronic form, in addition to appropriate remedies to meet the exigencies of the case, requires the greatest attention to diet, exercise, clothing, &c. A non-fatty diet, the abstinence from alcoholic stimulants, saccharine substances, acids, &c., is evidently indicated in fatty degeneration of the kidney; exercise, change of air, a sea-voyage are also beneficial. The skin should also be carefully attended to by daily bathing, and the cutaneous transpiration favored by flannel next the surface.



The complications and sequelæ should be treated according to the circumstances of the case.

There are three classes of remedies peculiarly indicated in this disease, *cathartics*, *diaphoretics* and *diuretics*.

Among the best purgatives, I have found podophyllin, with the nitrate and bi-tartrate of potassa, most effectual, the next best, colocynthin, elaterin, jalapin, podophyllin; the full effects of purgation are often beneficial.

*Diaphoretics*.—The connection which necessarily exists between the kidneys and skin, as excretory organs, is well known. In health, impeded function in the one, is, to a certain extent, compensated for by increased function in the other; the diseases of the skin, such as scarlatina, or small-pox, or burns, or psoriasis, or other causes that tend to check cutaneous transpiration, are peculiarly liable to produce renal disorder. Such being the case, it is highly judicious, in our treatment of this disease, in our efforts of curing, to excite, by every means in our power, the functions of the skin in Bright's disease, and, with this object in view, we would give Beach's diaphoretic powders, a valuable combination—*asclepin*, and *aconite*, *C. tincture serpentaria*, &c., &c., keeping the surface warm, hot-air bath, warm-baths, and, superior to all, the alcoholic vapor-bath, warm, equable temperature are means that prove useful. Should, however, as frequently happens, these remedies not prove useful, and the dropsical symptoms increase, then we have recourse to another class of agents.

*Diuretics*.—It has been thought by some authorities, that, in the acute inflammatory stage, where the kidneys are more or less congested, and loaded with exudation, *diuretics*, by stimulating the organs and exciting them to increased action, would add to, rather than diminish the excitement.

But when we consider that the *symptom* of *dropsy* is often induced by obstruction in the secreting tubes, which present a mechanical obstacle to the outward flow of fluid, it seems highly probable that, by increasing that flow, the accumulations producing the obstructions may be washed away. Besides, by augmenting the amount of fluid from the malpighian bodies through such tubes, as still remain pervious, a compensation is frequently to be found for the diminished flow which takes place in obstructed cases. Certain it is, that diuretics, in all stages of the disease, may be given with advantage; at least, I have never seen bad results from their administration. Indeed, there is no other course to pursue. The whole class of diuretics may be tried in Bright's disease, in combination with other remedies; but the most valuable appear to be our vegetable and saline diuretics, *eupurpurin*, *barosmin*, &c., with bi-tartrate and other forms of potassa; a saturated solution of *digitalis*, applied externally, and the same given internally, is often useful. There are certain remedies whose action in this disease are less obvious, and act more directly on the kidney; of these, perhaps, the favorite remedy of Dr. Bright, port-wine and gallic acid, is as good as any other; the mineral acids are more applicable to the declining stage of the disease—the *uva ursi*, in its different forms, in the chronic form of the disease; the *pyrola umbellata* and



the diosma crenata, where great irritability of the urinary organs exists. Urea in this disease accumulates in the blood, and is best eliminated by colchicum; carbonate of ammonia, in small doses, is very beneficial in this disease, following scarlatina, typhoid fever, malignant erysipelas, &c. The tincture cantharides and apismel are undoubtedly valuable remedies in small doses—they exert a special action upon the secreting tubes and other portions of the renal tissue. Creosote, in small doses, say three drops to thirty pills, one thrice daily, or ten drops of the phenol sodique, ter die, act promptly and well. Keith's apocynin is a good remedy in removing dropsical effusions. Apiol is very appropriate in the chronic form, especially the waxy or fatty degeneration, given alternately with digitalis.

Iodide of potassium has also been useful in reducing anasarca; it is especially appropriate if the affection be connected with constitutional syphilis, mercurial cachexia, or scrofula. Its action upon the exuded matter is such as to promote its absorption, and upon the obstructed tubuli, as to restore their impaired function. In albuminuria, as a sequel of diphtheria or scarlatina, where we have white cell-blood, iron exerts the happiest effects, not only in counteracting the deterioration, but has a very good effect on the renal tissue.

In the febrile stage, aconite exercises an excellent effect. If uræmic intoxication supervene, as is manifest by ocular illusions, wandering, partial delirium, cannabis indica is the most valuable of all remedies. Balsam copaiba, in small doses, is a remedy that must not be overlooked.

**HÆMATURIA.**—The seat of hemorrhage may be either from the kidneys, prostrate gland and bladder. The most common form of hemorrhage is from the kidneys, and may be caused by calculi, by blows on the loins; but most generally it depends upon a morbid state of the blood—a diseased state of the whole system.

Most physiologists believe that certain toxical elements contained in the circulation, and brought by the blood to the kidneys, are liable to produce in them disease. The organs, whose office is to deplete the blood, are the epithelial cells which line the uriniferous tubes, which surround the malpighian tufts of the kidney.

Hemorrhage from the prostrate gland or bladder, may be caused by the rude introduction of instruments, or by the irritation of stone, or by the existence of an ulcer or tumor.

When blood is derived from the bladder, some portion of it often flows pure after the urine is discharged, and it is in much greater quantity, and often in large and more irregular clots, than when derived from the kidney, besides the pain in the back, and other signs of renal irritation that accompany the kidney difficulty.

*Treatment.*—When the hemorrhage from the kidneys is attended with inflammatory symptoms, aconite and gelsemin are indicated; when with symptoms of debility, tonics, alteratives, astringents in mucilage. The special remedies are, iron, quinine, rhusin, hamamelin, sulphate of alumina et potassa, tannic and gallic acids, &c.

Cold applied to the loins and hips, by means of cloths wrung out of ice-water, or bladders of ice; the introduction of a catheter to prevent

all straining efforts at micturition; and if the hemorrhage resist all remedies, inject the bladder with cold water containing some astringent. If from the impaction of a stone in the kidney, smear the loins with extract of belladonna or lobelia.

**SUPPRESSION OF URINE.**—This is frequently a symptom of Bright's disease of the kidney. The prime cause of Bright's disease is, undoubtedly, in the blood; some morbid poison; and so long as this noxious matter remains in the blood, its normal condition is disturbed; the entire organism suffers; nature strives to eliminate all disturbing agents through the three grand emunctories, and she selects the most appropriate channels to throw off each deleterious substance.

The poison of variola is eliminated through the skin, and all the energies of the system are directed to that point for its escape; the poison of scarlatina is eliminated, not only by the skin, but by the mucous membrane of the throat and intestinal canal; if the vital forces are weak, and these parts fail in their proper share of their work, an extra amount of work devolves upon the kidneys.

During the passage of this poison through the tubuli uriniferi, an inflammatory congestion is produced, which prevents the malpighian corpuscles, and the epithelial cells of the tubes, from separating from the blood normal urine, and permits the passage of albumen, and so on, in other diseases. But it frequently happens that the kidneys become so diseased that they are unable to excrete either urine or anything else, and the constituents of the urine are absorbed into the blood, giving us what is known as uræmia, or uræmic intoxication.

The kidneys, if long diseased, are very apt to lose their function of secreting urine, and the consequences are, what we have already stated, that urea, and all the other elements of the urine, accumulate largely in the blood; the patient complains of great uneasiness in the head and loins, becoming first drowsy, then comatose, and dies in a few days.

We merely allude to it here so as to show the diagnosis between it and retention of urine. In suppression, if the catheter is introduced, the bladder is found empty; whereas, in retention from strictures, or diseased prostrate, or palsy of the bladder, it may be felt full and distended above the pubes.

**URÆMIA.**—[See separate article.]

## CONCRETIONS.

By concretions are understood non-organized and non-vascular productions, formed by the mechanical aggregation of various kinds of matter, generally in the cavities of the hollow viscera. They possess a remarkable disposition to collect round a central nucleus, which may be organic or inorganic. Under particular diseased conditions of the system, certain substances are apt to be deposited, or precipitated from the urine, which not only form a nucleus, but, if it is there, will, by affinity, aggregate to it and increase its dimensions.

If they are not precipitated from it till it has cooled, they are known as sediments; if they are precipitated whilst the urine is yet in

the bladder, they constitute gravel; and if they concreate together in any part of the urinary apparatus, they form stone.

Calculus affections would seem to be prevalent among a certain class of patients, those of a gouty or rheumatic diathesis; and it would almost seem that the metastasis of gout to the mucous membrane of the urinary passages, determine the formation of these calculous concretions.

Calculi have been found in the brain, lungs, bladder, liver, spleen, gall duct, uterus, the articulations and soft parts of the whole body, but the urinary organs are by far the most common seat of these formations. Concretions of the lithate of ammonia are common in gouty patients. It is correctly supposed that two-thirds of the whole number of calculi originate from lithic acid present in the urine.

Lithic acid is an animal substance, containing a large proportion of nitrogen. It is of a reddish-brown color, insoluble, unless combined with an alkaline salt; in the urine it is usually combined with ammonia, with which it forms a salt, the super-lithate of ammonia, the acid being in excess. In normal urine this salt is held in perfect solution; but, if it is secreted in an unnatural quantity, or if the quantity of water in the urine is too small to dissolve it, it will be thrown down in the form of an impalpable powder, constituting the amorphous lithic sedimen, and if there is any free acid existing abnormally in the urine, the lithic acid will be separated from the ammonia, and thrown down in a crystalline form, constituting lithic acid, or red gravel.

Amorphous lithic sediments appear in two forms: The *first* is a yellow sediment, which appears in the urine of every person whose digestive organs are out of order. It consists exclusively of the lithate of ammonia, combined with the coloring matter of the urine.

This form of sediment is common and well known; the urine is mostly acid and clear when passed. When the urine cools it is deposited; the addition of a drop of nitric acid causes the deposit of numerous little crystals of lithic acid.

The second variety consists of the lithate of ammonia, deeply colored by the pressure of an excess of highly carbonized pigment in the urine. The coloring matter has been termed *purpurin*, which is always present in the urine when there is an excess of carbonaceous matter in the blood, as we have by want of exercise, gross living, fever, dormant liver, and imperfect action of the skin or other organs whose office is to purify the blood from an excess of carbon, the *liver*, *lungs* and *skin*. This substance has a great affinity for lithate of ammonia, when that salt is in excess and is precipitated with it. This form of deposit varies in tint in different cases, the most remarkable being the lateritious or brick-dust sediment of fever, gout, rheumatism; and the pink sediment, which is indicative of organic disease of the lungs, liver, or exhausting suppuration.

Crystallized lithic deposits, which, in its common form, is but red gravel, consists of minute crystals of lithic acid, like cayenne pepper. They do not dissolve by the application of heat, like the lithate of ammonia. The urine from which they are precipitated is generally

acid, high-colored, scanty, of a high specific gravity. If these crystals are examined under the microscope, we have various appearances, mostly, however, modifications of the rhombic prism. The lithic acid diathesis prevails from childhood to fifty years of age; the urine, in all cases, is highly acid, and deposits the red sediment.

*Symptoms.*—Feverishness, pain in the loins, shooting down the bladder, aching of the testicles and hips, exceedingly frequent micturition, great pain and severe scalding in passing water.

*Causes.*—The diathesis, or state of the constitution from which lithic acid is generated, is frequently hereditary. Often very intimately connected with gout, rheumatism, and the sanguine variety of scrofula. It may be induced by errors in diet, living continuously on one kind of food, continual indulgence in animal food and malt liquors, imperfect ventilation, want of exercise, certain articles of diet, inattention to bathing, &c. There can be no doubt but that the lithic or uric acid is one of the forms into which the constituents of the blood are converted by oxydation, in order to their elimination from the system. If lithic or uric acids exist largely in the urine, it will be probably due to the causes already mentioned, as different diseases, to great supply of food, more being taken than the economy can elaborate, the surplus being oxydized and drained off by the kidneys; or from inability of the digestive organs to dispose of the food they receive; from a neglect of exercise, imperfect supply of oxygen to the blood, defective action of the skin, neglect of hygiene, &c.; by which means, not only is much of the lithic acid not oxydized and converted into urea, as it ought to be, but the natural outlets for much effete and acrid matter are closed.

*Treatment.*—The treatment of the lithic acid diathesis is quite extensive. The most thorough hygienic should be the rule; exercise in the fresh air, alkaline-baths daily; strict attention to the quantity and quality of the food, which should be nicely regulated to the wants of the system, to the capabilities of the stomach; diet plain, unsimulating—fresh vegetables, ripe fruit, to the exclusion of an undue proportion of oleaginous or saccharine or alcoholic substances. These latter, fat, sugar, or alcohol in any form, are very objectionable, because they load the blood with hydro-carbonaceous matters, which prevent the due action of the oxygen on the uric and its conversion into urea. Saccharine substances have the same objection, and an additional one of being liable to acetous fermentation.

The promotion of an active condition of the skin, and proper æration of the blood, is of great importance. Warm clothing, friction to the surface daily, as well as the use of tepid or vapor-baths; if there be difficulty in inducing perspiration, baths of an alkaline character. The system must be relieved of any excess of carbonaceous matters, and, above all, the portal system must be relieved by podophyllin, jalapin and juglandin.

It will be necessary to give alkalis for several purposes: to neutralize acid matters liable to be formed in the stomach at the close of digestion; to hold the lithic acid in solution; to counteract the diathesis by saline diuretics. For this purpose, queen of the meadow,



marsh-mallow, buchu, uva ursi, pipsissewa, parsley-root, &c., with some alkali. Benzoic acid has been used very successfully. This remedy, when taken into the system, has the property of abstracting from the blood a quantity of nitrogenous matter sufficient for its conversion into hippuric acid, and, in this very soluble form, is readily excreted from the kidneys; it should, therefore, be given in ten-grain doses, twice a day, in a glass of water. It is good to add to it a few grains of borax; also, during the day, to give bitter tonics, as cinchona, quassia, gentian, hydrastis, phosphorus, nitro-muriatic acid.

Lithate of ammonia rarely forms a calculi, being generally soluble in the urine.

The calculi of most common occurrence, after the above variety, are those composed of a combination of phosphoric acid and ammonia. This variety, if it exists, is not soluble in alkaline solutions, but the mineral acids freely dissolve it.

**OXALIC DEPOSITS.**—These may occur in the form of minute crystals, diffused through the urine, and only detectible by the microscope; or, more rarely, in the form of small calculus concretions, resembling hemp-seed, one of which may lodge in the bladder, and increase till it forms a mulberry calculus, of a dark-brown color, uneven surface, compact, heavy and hard. The urine containing them is generally of a darkish color and high specific gravity, containing traces of lithic or phosphatic sediment.

Oxalic acid is readily formed during the oxydation of lithic acid; and its presence in the urine must be attributed to some defect, either in the assimilation of the food, or in the changes which the nitrogenous tissues undergo when they become effete. It is occasionally derived from certain articles of food. The presence of this substance in the urine may be suspected in dyspepsia, with emaciation, great loss of spirits, nervous depression.

Irregular habits of life, unwholesome food, exposure to depressing agencies of any kind, are the exciting causes.

The *treatment* must be directed chiefly to the restoration of the general health, plain, nourishing, easily-digested food, warm clothing, medicated or nitro-muriatic acid, exercise in the open air, keeping the secretions active, toning the digestive organs.

**Phosphatic deposits.**—The phosphate of lime calculus is, in few instances, found pure, but usually it exists in combination with uric acid and phosphate of magnesia and ammonia. It is laminated, polished, of a pale-brown color, soluble in nitro-muriatic acid. They are usually of small size, and are frequently found in the prostrate gland.

It is vulgarly known as white gravel. There are three varieties,—triple phosphate, phosphate of lime, and the mixed phosphates.

The phosphatic diathesis offers a remarkable contrast to the lithic, both in the qualities of the urine being highly alkaline, in the character of the constitution, and in the causes that engender it. Patients who deposit the triple phosphate are of a pale color and bloodless appearance.

**ANÆMIA**, and symptoms of exhaustion, debility, aching pain in the

loins. It may be induced by inordinate fatigue, mental anxiety, hard study, insufficient or unwholesome food, debilitating medicines. Injuries of the spine produce alkaline phosphatic urine, as well as stricture, cystirrhœa, and other local causes.

*Treatment*—The indications are, to correct the diathesis, on which the morbid sediments depend, and to acidify the urine. The diet should be generous, but plain, and should include some malt liquor or wine—sherry. The importance of plenty of exercise, good clothing, thorough hygiene, should not be overlooked. Nothing is more injurious than fatigue, mental or physical.

The principal remedies are tonics, as cannabis, uva ursi, nux vomica, stillingia, gold, lycopodium, phosphorus, cinchona, iron, mineral acids, &c., &c.

In obstinate cases, nux vomica is of the highest value, more especially where it has originated from derangement of the digestive organs. It might be alternated with nitro-muriatic acid, or benzoic acid, or buchu, and otherwise treat the case on general principles.

*Excess of urea.*—Of the solid constituents of healthy urine, urea forms about  $\frac{8.0}{100}$ th part. It forms flat quadrilateral prisms, with aspect and taste like nitre. It belongs to the class of organic bases, and forms crystallizable compounds with several of the acids; is soluble in five parts of cold, or two parts of boiling alcohol—in its own weight of cold water, and in every proportion of boiling; is insoluble in ether; is permanent in the air. The amount of urea excreted by a healthy man in twenty-four hours is 270 grains. It is readily eliminated in the transformation of various azotized matters, and, when not removed by the kidneys, it accumulates in the blood, in the various secretions. The quantity of urea is increased by all cases which determine rapid metamorphosis of the tissues. Its retention in the blood gives rise to uræmic poisoning. The principal causes which form the excretion of an excess of urea are, the assimilation of large quantities of nutritious food, the use of stimulants, febrile disorders, and general activity of the circulatory and digestive functions.

Urea, then, is merely the ash of the living tissues; if it is present in excess, there is evidence of some defect in their vitality. Indeed, a superabundance of it and of the solid contents of the urine, indicate a rapid waste of tissue, consequently, debility, exhaustion, prostration, are not uncommon. The restoration of the general health is the only treatment.

**DIFFERENT VARIETIES OF CALCULI.**—Besides the three principal varieties of calculi, there are numerous others, some of which are rare.

The principal ones, however, are the *lithic*, *phosphatic* and *mulberry*.

The presence in the bladder or kidneys of any solid substance, favors the formation of calculi. The male is more frequently the subject of this affection than the female, evidently owing to the construction of the parts. The right kidney is more frequently the seat of the formation. Calculi may originate in the kidneys, bladder, or prostrate gland, but the kidney is the primary seat of the largest

proportion of cases; indeed, the nuclei of most stones found in the bladder are first formed in the kidneys.

A calculus may remain in the kidney or bladder for a long time, without exciting much pain or uneasiness, unless after violent exercise, and this condition of things may remain for an indefinite time, when, if the stone is situated in the kidney, some exciting cause may operate to bring about an intolerable paroxysm.

*The symptoms* of stone in the kidney are, pain in one or both loins, irritation and retraction of the testicle, the urine bloody after exercise, and occasional fits of inflammation of the kidney. Stones in the kidney are most frequently composed of lithic acid, which is known by the deposit of red sand from the urine. The mulberry calculus is more rare; it may be suspected if the urine is free from sediment, and if dark-colored blood is mixed with it.

Crystals of both substances, and of lithic acid, have been detected in the tubuli uriniferi.

Phosphatic stone in the kidney is still more rare.

When it does exist, it is generally composed of the phosphate of lime, and indicates incipient disease of that organ. Chemical analysis usually exhibits pus in the urine.

*Treatment.*—If a stone is ascertained, or suspected to exist in the kidney, the chief indications are, to determine the peculiar diathesis, and take the most energetic measures to counteract it, then to endeavor to hasten its expulsion through the ureters into the bladder, to remove inflammation by aconite and gelsemin, in an infusion of marsh-mallow or uva ursi, to resort to warm-baths and fomentations. The most favorable termination of renal calculus, is its dissolution in the kidney, or its escape into the bladder, through the ureters. In some cases, however, it remains in the kidney, increases in size, completely fills up the pelvis, causes the organs either to waste or suppurate; it may burst into the colon or the loins.

If the stone passes through the ureter into the bladder, it will cause the following train of symptoms: The patient complains of sudden, severe pain, first in the loins and groin, subsequently in the testicle and inside of the thighs.

The testicle is also retracted spasmodically; at the same time there is violent sickness, fainting and prostration, which may last two or three days, and are only relieved when the stone reaches the bladder.

*Treatment.*—The relaxing influence of gelsemin may be here used to advantage; warm-bath, diuretics and anodynes, are the obvious remedies.

**STONE IN THE BLADDER.**—Stone in the bladder produces the following symptoms: irritability of the bladder, frequent irresistible desire to make water, occasional sudden stoppage of the stream of water during micturition from the stone following on the orifice of the urethra, the stream probably flowing again; if the patient throws himself into a different posture, on his hands and knees, occasional pain at the neck of the bladder, most severe after micturition, pain in the glans pubis; but none of these symptoms can be depended on. The only positive indication of a calculus, is our ability to strike it

with a sound introduced into the bladder; and, it is well never to give an opinion unless it can be felt with the sound, and it is even well not to be satisfied with one examination. Such an examination should be made with the patient on his back, the bladder nearly full, and the sound should be carefully moved about to examine any part of the bladder.

The symptoms of stone vary in their severity; according to their size and roughness; according to the state of the urine; according to the condition of the bladder; and some little pain in micturition and bloody urine may result after very severe horse exercise, so it is proper to be guarded in our diagnosis.

The sources of the calculi are from the urine; the mucus of the bladder and calculi are very apt to form from the latter source if the prostrate is diseased, or if foreign bodies are introduced into the bladder to form a nuclei; and one of the most remarkable circumstances connected with vesical calculi is, that the nucleus may be composed, not only of various kinds of salts, or of fragments of other calculi, but even of foreign substances which have been introduced from without. In these cases, the stone is invariably phosphatic, and all calculi, whatever their original composition, are sure to become coated with phosphates, if they remain till the patient becomes old and the bladder diseased.

The composition of a calculus is usually determined by the state of the urine. Its size also may be appreciated by its composition, for the phosphatic are the largest—by the length of its existence—by observing the force required to dislodge it from its position; it may be measured by passing the sound across its surface. Calculi vary in weight, from a few grains to some ounces; in number, from one to over a hundred and fifty.

*Treatment.*—Our therapeutic resources should be classed under the following heads: change the diathesis on which the formation of stone depends, relieve pain; dissolve the stone, and, if remedies fail to do so, extract it by some of the operations embraced under that head.

In changing the diathesis, look to the diet, avoid stimulants of an alcoholic character, also, water impregnated with lime; also, mental or bodily fatigue, exposure, depressing passions, the tendencies to gout or rheumatism, dyspepsia, &c. If the depositions depend upon a *lithic acid diathesis*, everything of an acid nature should be avoided, and animal food, baths, frictions, and abundant exercise should be taken, to insure a healthy action of the skin.

The *phosphatic diathesis* usually depends upon a loss of tone of the digestive organs, the too free use of animal food, profuse sweats, over-exertion, mentally and physically. Here a farinaceous diet, a free use of fruits and acids, should be inculcated. The next point of importance is to dissolve the stone, if possible; and it is a question whether there are, at present, any known remedies capable of dissolving a calculus after it has attained considerable size.

It is true, we may correct the diathesis upon which the morbid sediments depend. But we have occasionally been successful in dissolving calculi altogether, and, in other cases, have so disintegrated them, or



reduced them in size, that they made escape through the urethra. Weak or highly diluted injections of nitric acid, passed at least twice a day into the bladder; these injections diminish the secretion of mucus, which is the source of the phosphate of lime. Oxalic calculi resist the action of all solvents. The disintegration of lithic calculi, by solutions of alkalies or alkaline salts, embrace a large field of hopeful experiments, and hold out brilliant prospects for further trials.

We have derived the most excellent results from the following remedies, in the certain conditions enumerated:

*Benzoic acid* is especially indicated in the lithic acid diathesis in all temperaments.

*Buchu, uva ursi, cannabis, pipsissewa, bi-tartrate of potass and digitalis*, are excellent remedies during a fit of gravel, accompanied with painful micturition, slimy, purulent urine.

*Stillingia* and *nux vomica*, whenever it has originated from derangement of the digestive organs.

*Lycopodium* is indicated when the urine is of a dark color, and deposits a red or yellowish sediment.

*Phosphorus* may be used with advantage in broken-down constitutions, in debilitated patients.

Cinchona must never be overlooked. If it is known that it has passed the ureter into the bladder, the first point is to remove the irritability of the bladder by sedatives and proper remedies to render the urine normal, so that there may be no spasm to obstruct its passage into the urethra.

The patient should also drink freely, so that the bladder may be quite full. Then, when he is going to make water, he should lie on his face, and grasp the penis, so that the urethra may become distended with urine, and then, very probably, the sudden gush that will come when he relinquishes his grasp of the penis, will bring the stone with it. In some cases the urethra may be dilated with bougies; but if this does not succeed, the urethral forceps should be used; and if their use is not successful, then *lithotrity* should be tried; the object of this operation is to reduce stones in the bladder to fragments of so small a size that they may be readily expelled through the urethra.

If the patient is an adult, the stone under the size of a chestnut, the bladder and urethra healthy, the operation of lithotrity should be tried. But, if the stone is very large, or hard, if there is more than one, if the urethra is strictured or prostrate, enlarged, or the coats of the bladder diseased, or the stone adherent or contained in pouches of the bladder, or if there is great irritability of the bladder, so that it repels the instrument, and contracts spasmodically, or if the patient is very old or very young, it might be safe to resort to lithotrity, although there are certain conditions which contra-indicate this operation. The patient must be free from organic disease, which would render him liable to sink under the operation; the existence of hectic, consumption, cancer, &c., require the surgeon to decline the operation, or, if performed, the patient and his friends should be informed of its probable results.

There are four modes of operating; the lateral in the perineum;

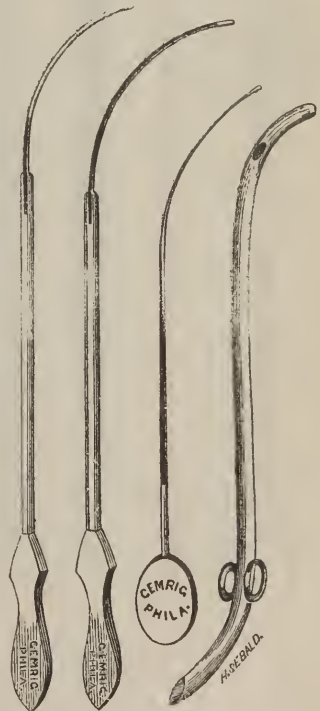
the bi-lateral; the recto-vesical; and the high operation above the pubes.

The lateral in the perineum is the best, except in some few rare cases. The high operation is performed by making an incision in the linea alba, and opening the bladder; it is resorted to when the stone is large, or when the space between the tuberosities of the ischia is contracted.

**OPERATIONS FOR STONE.**—Having satisfied yourself, from the aggregated symptoms, and from sounding, that there is a stone in the bladder, your next step is to decide upon the operation for its removal. Two modes are offered: crushing with the lithontriptor, (called lithontripsy,) or cutting in for it with the knife, called lithotomy. Where circumstances are all favorable for lithontripsy, this method is always to be preferred. Yet there are so many conditions in which this plan is impracticable or improper, that lithotomy must be performed in a majority of cases, notwithstanding it has been elaimed by some that the crushing is a complete substitute for the more formidable operation with the knife.

For the use of the lithontriptor, the patient must be an adult, or nearly so, as in younger persons the urethra is too small to admit an instrument strong enough for the purpose. There must be no stricture of the urethra, and no enlargement of the prostate gland, so as to obstruct the passage of the instrument. There must not be much irritability or diminution of the bladder, so that there will be sufficient room to work the instrument. The stone must not be of a large size, nor of the hardest kind, such as a mulberry calculus. There must be no adhesion to any portion of the bladder.

The best prospect of success in the use of the lithontriptor is, when the urethra and bladder, being sound, the prostate in a natural position, and the patient an adult, the stone is both small and soft. If any of these conditions are wanting, lithotomy is the only resort. Children are, by the narrowness of their urethra, of course, excluded from the list of cases for lithontripsy. Instruments employed in the operations of lithotomy and lithontripsy. *Fig. 77*, staves employed in operating for lithotomy. *Figs. 78, 79, 80*, instruments for crushing stone in the bladder. *Fig. 81*, Jacobson's instrument for crushing a calculus in the bladder; the articulated loop holds and crushes the stone.



*Fig. 77.*

when it is caught in the grasp of the instrument. *Fig. 82*, a litholabe for extracting fragments.

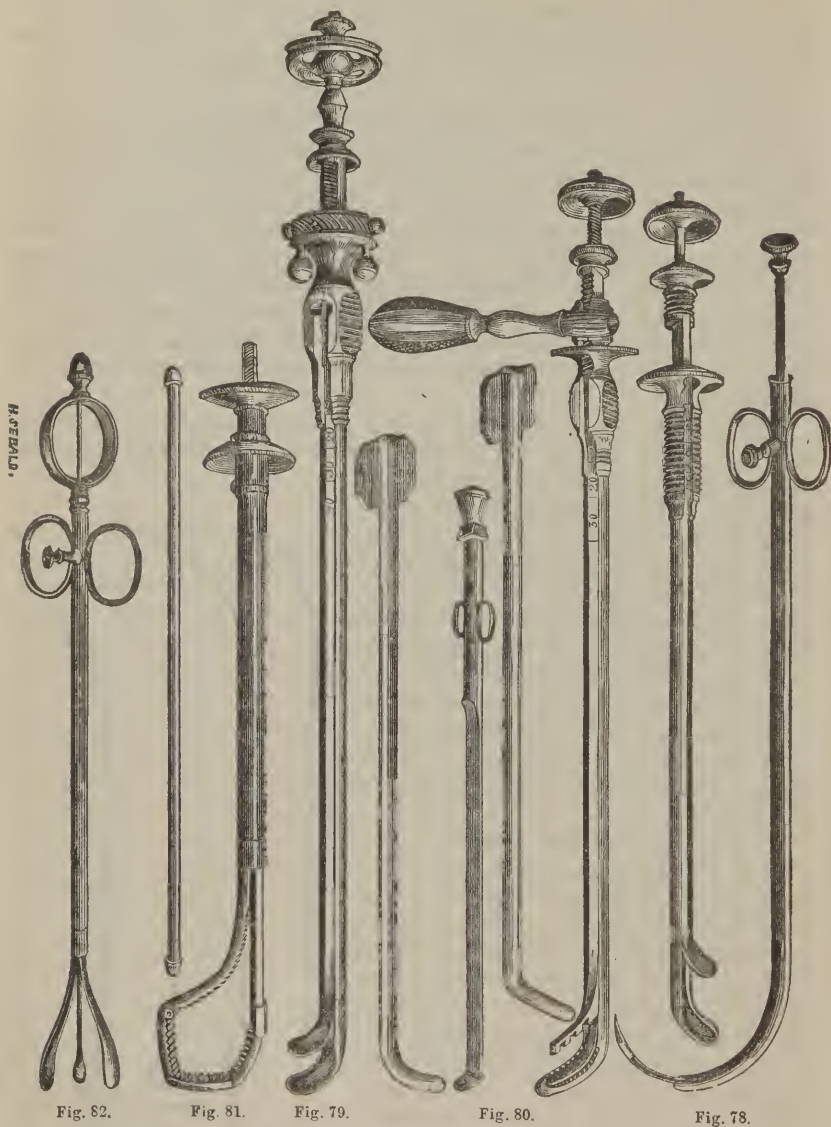


Fig. 82.

Fig. 81.

Fig. 79.

Fig. 80.

Fig. 78.

**THE OPERATION OF LITHONTRIPSY.**—The patient is placed on a table covered with quilts; the hips are elevated, so as to throw the stone back from the mouth of the urethra, and the bladder, if not already full of urine, is to be nearly filled with tepid water, injected through a catheter. The urethra must have been previously dilated by the repeated use of bougies, increasing the size, from time to time,

for a week or more, until the lithontriptor will enter. This instrument is then warmed, oiled, and passed in, closed up, as a common sound or bougie. When it comes in contact with the stone, the moveable half is pushed in, so as to open the blades at the joints, and form a sort of firm loop. Rotate this from side to side, and tighten a little occasionally, so as to grasp the stone whenever it gets in the loop. As soon as it is fixed between the blades, which will be known by your inability to draw the sliding half back, turn gradually upon the arms of the screw, which slowly, but with great force, draws out the slide and brings the blades together. When the stone gives way, and the instrument closes, reopen it and manœuvre as before, to catch any large fragments that may remain; continue thus until all are finely crushed; then withdraw the instrument, and let the patient turn over, with his face downwards, and evacuate the fluid from the bladder as freely and rapidly as possible; it will carry off with it a large quantity of the powdered stone. Inject the bladder full of tepid water immediately, and let it pass off, if the urethra and bladder are not too irritable. This may be several times repeated, if the patient can bear it, until all the fragments are washed away. If there be too much irritability in the parts for these injections, you must depend on the natural evacuations. These, however, may be much aided by a free use of demulcent diuretics, such as an infusion of *althæa officinalis*, *eupatorium purpureum* and juniper berries, equal parts, drank to the extent of two or three pints a day.

**LITHOTOMY.**—Before attempting this operation, or even the preceding one, the patient's general health must be, as far as possible, restored, and all irritation of the urethra, bladder and kidneys allayed. For the latter object, an infusion of the *althæa officinalis* is the best. It should be taken to the extent of a quart a day. The *eupatorium purpureum*, used in the same manner, will answer well. A strong infusion of the *pyrolia rotundifolia* produces an excellent effect; so, also, does the hair-cap moss. An infusion of the seeds of the common sun-flower is a most excellent mucilaginous diuretic. It is soothing to the parts, and increases greatly the discharge of urine. Any of these, or a combination of several or similar articles, should be used freely. The healthy action of the skin must be promoted. The patient should have good diet for some weeks before the operation.

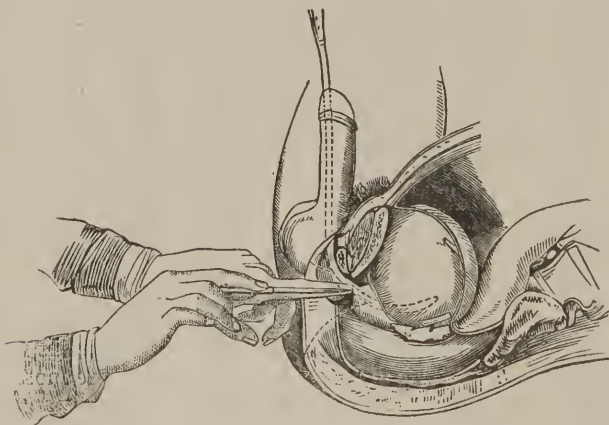
Several different modes of operating have been adopted, but the lateral operation is now almost universally preferred. It is the mode invariably adopted by some of the best and some of the most successful lithotomists living. The bowels having been evacuated by an enema, and the bladder being nearly full of fluid, (which should be insured by tying up the penis for sometime before, or injecting in tepid water through a catheter,) the patient is ready for the operation. Place him upon his back, on a table covered by quilts or a mattress. The table should be of such a height as to enable the surgeon to work easily while sitting in a chair. Flex the thighs on the abdomen, and the legs on the thighs; separate the knees, and make him grasp the soles of his feet with his hands; then fasten the feet and hands together by bandages, first put around the wrists by a noose. Now give him the ether or chloroform until he is insensible to pain, unless you should choose to operate without this



advantage for both. It is better, also, at this stage, to apply a bandage around each arm and thigh, tightly enough to stop the return of the venous blood as far as practicable, so that a large amount of blood will, for the time, be retained in the limbs, and thus, being withdrawn from the general circulation, will greatly lessen the hemorrhage during the operation. The hemorrhage from this operation is not unfrequently dangerous, especially if the pudic artery be cut, as sometimes happens.

Having thus prepared his patient, the surgeon introduces the staff, which is a steel instrument, like the sound, though a little larger, with a groove in its convex surface. An assistant on each side holds the thighs apart, and another holds the patient's head and shoulders firmly. A third holds the scrotum to one side, and supports the staff perpendicularly, drawing it up firmly against the pubes. A fourth assistant stands by to reach the surgeon his instruments.

The operator, before beginning, introduces a finger into the rectum, not only to ascertain that it is empty, but to stimulate it to contraction. The perineum must be previously shaved clean. The knife used has the posterior two-thirds of the edge blunt; it is somewhat longer than the common scalpel. This enters the perineum, about midway between the scrotum and anus, on the left side of the raphe, and is brought downward and outward, dividing only the skin and superficial fasciæ, to about midway between the anus and the tuberosity of the ischium, as in *Fig. 83*. The section is then deepened by



*Fig. 83.*

the finger, for the purpose of security to the rectum and to the blood-vessels. Muscles also should be separated rather than torn. If any portions of the levator ani resist the finger they must be divided by the knife. So also with the transverse perineo, though that muscle is often wanting. The point of the knife has to be applied with great care to any part that resists dilatation. The finger nail is lodged in the groove of the director, just in front of the prostate and behind the triangular ligament. The knife is made to perforate the urethra,

and enter the groove behind the finger, which simultaneously follows it, entering the urethra, which the knife divides far enough for the purpose. The finger moves freely on the dilatable substance of the prostrate. The base of that gland is not divided; and the ileo-vesical fascia is left entire, to prevent the danger of urinary infiltration. An incision just large enough for the entrance of the finger can be easily dilated for the exit of ordinary-sized calculi.

The rule in this lateral operation is, a free external wound, and a small internal one. The wider the former the shallower need be the latter. Care must be taken in withdrawing the knife, not to endanger the pudic artery, by bringing it too near the ramus of the ischium.

During the dilation of the deep-wound by the finger, urine escapes; and commonly, the stone or stones descending with it, can now be distinctly felt. The staff is gently withdrawn; and, if the stone is found too large to pass through the opening, already prepared, a straight probe-pointed bistoury can be passed over the forefinger, still in the wound, dividing the prostatic portion of the urethra on the right side as well as on the left, and then dilating as before. This bi-lateral incision can be made in the first place, when the calculus is known beforehand to be so large as to require it.

The finger is kept in contact with the stone until it is seized by the forceps. These should be large enough in the blades to hold the calculus by as many points as possible, and long enough in the handles to furnish sufficient leverage; while, for other obvious reasons, it should be as small as will meet these conditions. To lessen the chance of the stone's slipping, the blades of the instrument may be lined with cotton cloth. If the stone is not immediately clutched, the point of the forceps should be advanced and depressed to the part where it is most likely to be found. The object being seized, it is to be turned round with the forceps, to be certain that no part of the bladder is included, and then elevated and taken out, the finger being again inserted between the blades of the instrument, to ascertain that the calculus is in the best position, or to put it so if required. Its longest diameter being adjusted in the axis of the instrument, and that in the direction of the axis of the pelvis, obliquely downward, extractive force is slowly applied, the forceps being at the same time moved to and fro, forward and backward, to secure further dilatation. The handles are held together tightly enough to prevent the stones slipping, but not so strongly pressed as to risk its being crushed or broken. The finger must be used to prevent the bladder being pulled out before the stone, and separate any fibres of the levator ani or other obstacles in the internal wound.

In rare cases the stone has been found lodged above the pubes, or, in old men, in a deep pouch of the bladder, behind the prostrate, requiring the use of curved forceps. Another difficulty occurs when it is more or less encysted. In that case, any projecting part is to be seized, and extraction from the cyst first attempted. This may be aided by the point of the finger or of a probe-pointed bistoury. The complication may require delay for the textures to relax.

In case of the stone being crushed by the forceps—or of a large

number of very small stones—the scoop will be found a more available means of extraction than the forceps. The stone or fragments having been caught in this, is brought cautiously upward and steadied in its place, as soon as possible, by the point of the finger. After the crumbling, or where there is gravel, too minute to be all, with certainty, scooped out, the bladder is to be syringed out clean, either through the wound or through the urethra, the patient being placed in the sitting posture, for a good stream to run out easily.

The existence or absence of mere calculi, may be ascertained with considerable certainty by the appearance of the one extracted. If it is found equally rough and uneven all round, it is evidence of never having been in contact with another hard substance. Smoothness of surface, on the contrary, particularly if partial, with a depression or flatness at the part or parts, will indicate the presence of at least another stone. With the searcher or the scoop, used as a sound, every part of the bladder ought to be explored.

Previous to dressing the wound, a tube of sufficient calibre to allow the exit of blood as well as urine, is inserted and fastened by a T bandage. To favor this free escape, the patient is fixed in bed, with the shoulders elevated, and, when urine is not passing out freely, the tube should be frequently cleared. The secretion, as well as excretion of urine, should be encouraged as much as possible. Give mild alkaline and mucilaginous diuretics, and avoid opium, should an anodyne seem indicated. Hyoseiamus or cypripedin may be a good substitute.

One object of the tube is to prevent urinary infiltration; and, as soon as sufficient plastic exudation appears to have occurred round it for this purpose, or when the urine begins to pass out at the urethra, withdraw the tube and close the wound as soon as possible. The wound heals as in ordinary cases, and generally requires only simple dressings. The first urine that passes through the natural channel causes great pain. If any obstruction or unusual delay occurs, the catheter will have to be carefully used.

The chance of final success will depend on the after-treatment, though still more, perhaps, on the preparation of the patient for the operation. A repetition is rarely necessary, the removal of one calculus being said to change the diathesis. However this may be, other prophylactic measures are proper, and not likely to be neglected by the patient if he knows them.

Among the casualties which, in hospitals, and in most hands, make this a too often fatal operation, may be enumerated the dread or shock itself, (generally to be avoided by the anæsthetic agents,) hemorrhage during the operation, and hectic from the inflammation, and too copious suppuration of the wound.

CYSTITIS, and consequent peritonitis, are generally to be avoided by proper care in the operation. The wound may continue open after the urethra has resumed its functions, constituting a peculiar and mild form of fistula in perineo, or even fistula in ano may be a consequence of inadvertently wounding the rectum.

URINARY INFILTRATION, when it comes on after the operation, may

be mistaken for peritoneal inflammation, before the local damage occasioned by it is manifest. When both peritonitis and infiltration occur together, it is confessed by some to be a perplexing choice between the measures of depletion, supposed indispensable for the one condition, and the requisite support of the patient's strength for the other. Antiphlogistics that are not debilitating, relieve from all such dilemmas.

OTHER OPERATIONS ABOUT THE PUBES.—*Puncture*, or paracentesis of the bladder, has been resorted to occasionally for the discharge of its contents, where there remains no other means of effecting that object and preserving life. A trocar and canula are pushed into the bladder, as in tapping the peritoneum, either just above the front of the pubes, or through the fore-part of the rectum, (in women, of the vagina.) By sufficient care, a permanent orifice for urine can be made at either point. There is more danger of infiltration and fistula in the rectal or vaginal, than in the supra-pubic operation.

LITHECTASY.—The object of this operation is to remove the stone by a slow and gentle dilatation, by means of bougies for a period of five or six weeks, always increasing the dilatation at short intervals; it is a method where the stone is not large, that is worthy of a trial.

## DISEASES OF THE PENIS.

PHIMOSIS.—This is a preternatural constriction of the orifice of the prepuce, too small to allow of the complete retraction of the foreskin. It frequently, from certain causes, forms an obstacle to the flow of urine. Should this prove to be the case, the preputial orifice must be cautiously slit up, or circumcision should be performed.

PARAPHIMOSIS consists of a retraction of a tight prepuce over the glans penis, with swelling, preventing its return. This swelling is quickly followed by inflammation, which may run on to gangrene of the constricted glands. The everted prepuce should be replaced as quickly as possible. I have always been able to effect reduction without the knife, or without the use of relaxing remedies in a few minutes. My method of treatment is somewhat peculiar also. I use a ribbon about an inch and a half wide; I make one complete turn of it round the glans penis; one end I wrap several times around the little finger of the right and left hand respectively, the patient standing directly opposite, compressing the glans for a few minutes; a diminution in size soon takes place; the thumb and index fingers of both hands being free, manipulation by them, such as pressing the glans backwards, and drawing the prepuce forwards, keeping up traction, firm traction, on both ends of the ribbon. I have never failed to relieve, even in the most aggravated cases. Lobelia, belladonna, ice, cold water, muriate of ammonia dissolved in water, are often tried to reduce the swelling. It is seldom necessary to divide the foreskin.

PHIMOSIS AND PARAPHIMOSIS, then, are analogous conditions, both resulting from a constriction of the prepuce, the former before the glans, the latter behind it.

PHIMOSIS may be congenital or acquired; the latter manifesting



itself either as an acute or chronic disease. The acute form often occurs from infiltration of the part during gonorrhœa or syphilis. When the contracted edge of the prepuce has slipped over the glans, but is too tight to be returned, forming a kind of ligature behind the corona, from the effects of which the substance of the glans swells still more, it constitutes paraphimosis. If, by compressing the glans and other simple means, it cannot be got back, the constricting parts must be divided. The other difficulty may require, for immediate relief, a straight incision, and for permanent comfort or security, more or less of circumcision.

A director should be used in making the longitudinal incision, and sutures are afterwards necessary to keep together the mucous membrane and the skin that would otherwise contract beyond it. After the operation, dress with dry dressing, and administer an anodyne.

The above diseases often give rise to cancer of the penis, which, of course, must be treated as cancer.

AMPUTATION OF THE PENIS is often performed for cancer. This is one of the simplest of operations, however terrible it may be thought. Almost the only occasion for it is, improperly managed cancer, or other malignant disease. When not performed very close up to the pubes, one cut of the knife suffices, it not being necessary even to draw back the skin for a flap, as the corpora cavernosa retract sufficiently as soon as divided. An assistant holds and compresses the stump until the ligatures can be applied; the two dorsal arteries, if not two or three others, have to be tied. Higher up, the operator cuts down to the arteries, and ties them before division; at least the six principal ones. But, if the physician has an *ecraseur*, it is much superior.

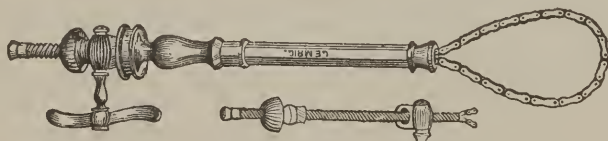


Fig. 84.

Put the penis in the loop, (either having the patient etherised, or applying Richardson's local anæsthesia to the track of the chain,) then gradually tighten—take half an hour to go right through; in this mode, the patient will not lose a drop of blood; no vessel needs ligation; cure is very rapid.

Congenital malformation of the penis is not uncommon, and when met with, should be rectified as quickly as possible.

Acute inflammation of the testis is treated by aconite, gelsemin, warm hip-baths, the muriate of ammonia lotion, free secretions; abscess must be treated on general principles.

Neuralgia of the testis, is best treated by stimulating the skin, bowels and kidneys; the local application of belladonna, and, internally, stillingia, iodide potass, nux vomica, phosphorus, lupulin, quinine and tonics.

HEMATOCELE, an extravasation of blood into the tunica vaginalis, in consequence of injury. Puncturing, rest, cold lotions.

**HYDROCELE** is a collection of serum in the tunica vaginalis. This, if attended to early, is amenable to treatment; the application of cold, or a lotion of the muriate of ammonia, or by painting the scrotum several times with tincture of iodine, or iodide of lead, or ammonia; and, if these and other means fail to procure absorption, the hydrocele may be punctured, and the fluid drained away, (as in *Fig. 85*;) and for the purpose of establishing a permanent cure, and destroying the secreting properties of the part, injecting the tincture of iodine, or leaving a few strands of silk in the tract of the puncture, will excite inflammation sufficient to do the work.

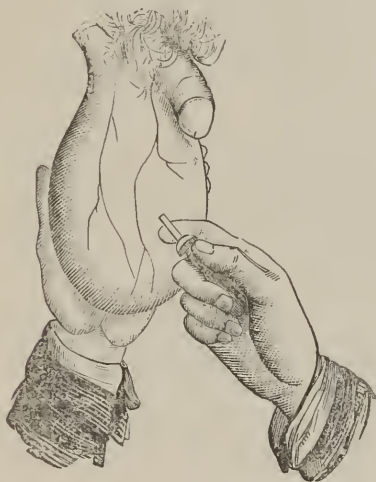


Fig. 85.



Fig. 86. Hydrocele Trocar.

**CIRCOCELE.**—A varicose condition of the spermatic veins. It is caused by the ordinary causes of varix. It is an affection that has seldom been cured.

**VARICOCELE** is a similar affection of the veins of the scrotum, and the same treatment should be resorted to as in circocele.

In the treatment of both affections, great relief is often experienced by keeping the bowels regular, by keeping applied to the scrotum the extract of hamamelis, and supporting it with a suspensory bandage. Various operations have been proposed, and also plans of treatment, which can never commend themselves to the scientific mind. The method which appears most promising, is the use of the above; the moderate application of moderate pressure to the dilated veins, as well as the scrotum, and afford them a moderate degree of support. At the same time, a tonic course, phosphorus, cinchona, &c.

## SPERMATORRHŒA.

This disease results from an excessive secretion and discharge of semen, whether produced by masturbation, excessive venery, or occurring spontaneously during the night.

The effect of an unnaturally excited secretion of so valuable a product,—a product highly vitalized, which constitutes the sole contribution of the male towards the preservation of the species, never fails, when long-continued, to produce a train of disorders, both of the nervous and digestive systems, known as nervous exhaustion.

**PHYSIOLOGY OF SPERMATORRHŒA.**—The term spermatorrhœa is properly applied to all cases where emissions of seminal fluid take place, otherwise than in obedience to the natural act of coition.

The seminal fluid is stored up in the vesiculæ seminales, and small ducts open from the junction of these with the vas deferens, into the urethra. In a healthy condition, these ducts are closed, so that semen cannot escape, except in the act of coition; but when they become weakened by excess, masturbation, &c., the slightest pressure or excitement will cause an escape of semen; and if this debility remains, dilatation, relaxation, will continue, and the seminal fluid will escape at any time.

SPERMATORRHŒA is a common result of masturbation,—an inviolable result; but it does not necessarily follow that, if the patient suffers from involuntary seminal emissions, that he has been guilty of onanism. The disease may have had its origin in other causes, as abnormal excitement, a full bladder or rectum, stimulating food or drinks, feather beds, gonorrhœa, excesses.

The seminal fluid is continually being secreted from puberty until decay supervenes, *generated, stored up*, reabsorbed, or ejected from the system at regular intervals; but the formation of this fluid is entirely under the control of the nervous system, and its secretion will be hastened by having the mind directed to sexual desires, and it may be that a larger quantity will be produced at a terrible expense of the brain and spinal cord.

One form of spermatorrhœa, is the escape of the fluid during the night, with erection of the penis, and erotic and lascivious dreams. This is a common form.

In another class of cases, the escape of the seminal fluid is experienced at regular intervals during the day, without any direct cause. The patient feels the fluid escaping from the urethra, without exciting any pleasurable sensation, and an entire absence of erection of the penis.

Perhaps the worst form of spermatorrhœa is, that where the semen escapes by the ducts into the urethra, not to be ejected immediately, but to pass backwards into the bladder, and then to be brought away with the urine. In this way the patient may find himself suffering from debility, nervousness, and ignorant of the cause.

To be positively certain of the fact that these emissions do take place, the urine and urethral discharge should be examined carefully by the microscope.

Sexual excitements, invariably, if frequently repeated, bring about profound nervous collapse, which is undoubtedly owing to the intimate commissural connection between the lumbar region of the cord, where the pudic nerves are implanted in the nerve centres; the intense excitation, nervous shocks, self-produced and persisted in, uses up the

whole chain of ganglionic force, so that depression is greater, more continuous than the excitation.

*Symptoms.*—The intimate relation of the physiological function, which yields this product, with that which pertains to the nervous, in all its range of influence, would lead us naturally to suppose that that great fountain of vitality suffers immensely. Accordingly, we find among the earliest symptoms, marked impairment of the mental faculties.

The patient is unable to concentrate his mind upon anything; his memory is treacherous, physical powers weakened, courage and energy fail; he is languid, debilitated, hypochondriacal, misanthropic, fearful forebodings, with a lack of confidence in his own abilities; is dyspeptic, prone to suffer from various derangements of the alimentary functions; loses flesh, becomes emaciated, &c.

*Pathology.*—The secretion of the mucous membrane of the urethra is usually acid, but at times an alkaline reaction predominates, arising from an abnormal condition of that membrane. If either the acid or alkaline reaction is in excess, the deterioration of the fecundating fluid is likely to happen, which deterioration, by destroying the spermatozoa, will also destroy its fertilizing qualities. Sterility is often due to excessive acid and alkaline secretion from both the vagina and uterus.

The secretion of the prostate gland is charged with more or less of the phosphate of lime and soda, and it is secreted and poured out at a time when its neutralizing salts are made available for use.

*Causes.*—It is not easy to ascertain the true cause of the irritation on which the seminal flow depends. It commonly arises from masturbation, excess in sexual intercourse, gonorrhœal lesions, mechanical obstructions, irritation in the rectum, which irritate the seminal vesicles, or prostate gland, hemorrhoidal fissures, prostatitis, or stricture of the urethra; in nearly all cases, the excessive discharge of semen arises from debility or irritation, established in or about the seminal ducts, which convey the secretion from the testicle.

The sexual organs are so weak and irritated, when such a condition exists, that even excitement from a lascivious idea, or from the mere friction of the clothes, will bring on an imperfect erection, followed immediately by a discharge of their fluid. This condition of things renders the patient quite incompetent for sexual connexion, and the frequent and abundant losses of seminal fluid, together with the patient's own consciousness of his own imperfect condition, brings on a most miserable state of bodily weakness and mental despondency.

*Treatment.*—Let the patient sit in a cold hip-bath for twenty minutes, three times daily; after the first sitting, a shower-bath might be used. If this does not succeed, use salt-water, or sponge with salt. Sponging and frictions along the spine, or the use of Chapman's ice-bag daily, or dashing cold water from a height, are beneficial.

Masturbation, if it has not entirely ceased, must be abandoned at any sacrifice; and, when it is not, it may result in insanity, dementia, catalepsy. The cheerful and grateful influence of good society is indispensable.



The general health must be improved with tonics and alteratives; *irisin* alternated with gold; *C. syr. stillingia* and bromide of potassium. Afterwards, phosphorus should be tried, then the tincture of the sesquichloride of iron. *Lupulin* has been found extremely useful in spermatorrhœa, combined with *gelsemin*. The various preparations of *cinchona* must not be overlooked; they have an undoubted efficacy in controlling the night-discharges.

Gymnastic exercise should not be overlooked. Rise early, exercise well, and, for the discharges, depend upon bromide of potassium, *hyosciamin*, *lupulin*.

If there is constipation, let the patient take *hydrastin* and *nux vomica*. If the urine scalds, and there is spasmodic pain in the neck of the bladder, and the urine loaded with lithates, or clouded with mucus, try the nitro-muriatic acid and *chimaphilin*. If none of these succeed well, try *digitalin*; it has been used with great success.

The caustic-holder is not to be regarded as the best remedy, although it is sometimes useful. A good instrument for applying caustic, is a canula with a stilette. After introduction, the stilette is withdrawn, and a bougie passed down, prepared thus: the tip being scraped rough, it is rolled in fused caustic, and this again in melted suet, by which a thin film of caustic is secured. The space which should receive the caustic, is from the neck of the bladder to the membranous portion of the urethra, as near as practicable, about the region of the orifices of the ejaculatory ducts.

If we have irritation of the bladder, from increased secretion of the mucus, it must be removed; mucilaginous diuretics, as *marsh-mallow*, *hair-cap moss*, or *verbascum*, acetate potash. Tonics must be relied on; they have an excellent influence in this disease; the wine-bitters, phosphorus, *eryngium aquaticum*.

The treatment, in all cases, is difficult, and requires the nicest judgment and skill. The employment of the solid nitrate must be emphatically condemned. We must never be satisfied with the ordinary treatment, for that has failed. Our remedies must be such as will act with power, being varied to suit particular stages and temperaments.

In that class of cases in which there are frequent nocturnal emissions, accompanied by no evidence of disease, the cold salt-water hip-bath is invaluable. Sponging and frictions along the spine, dashing cold water from a height on the genital organs.

In another class of patients, in which the symptoms are of a lower type, erections feeble, emissions easily provoked, the habit of masturbation, either practiced, or having been practiced, cold salt-water applications externally, combined with the internal administration of bromide potassa, *digitalin*, *lupulin* and phosphorus, *elixir cinchona*, *ferri et phos*.

I have cured some obstinate cases in a few weeks, by means of galvanism, as follows:—Lay the patient on his back, introduce a large-sized insulated steel sound, well oiled, but cold. Pass the instrument over the seminal ducts, right into the prostrate, using no force, but maintaining the point of the sound at the neck of the bladder. The negative sponge, electrode, should be carefully adjusted on the peri-

neum, while the other pole is connected with the insulated sound, and the current passed for fifteen minutes. It should be repeated every other day.

IMPOTENCE.—This, in the male, may depend on a variety of conditions. It may be caused by deficiency, or malformation, or original weakness, or want of development of the genital organs. It may be the result of spermatorrhœa, or tedious illness, from which the genital organs remain incapable of performing their functions long after the general health and strength are well restored. Tonics, with small doses of cantharides, nux vomica, Indian hemp, galvanism, applied scientifically, spices, eggs, oysters, are the remedies. Phosphorus is a potent remedy in these cases.

Blows on the head or spine are apt to be followed by impotence. A cautious use of alteratives, gold, irisin, and the like, followed by the irritating plaster to the spine, and the treatment laid down under paralysis.

Certain diseases are apt to be followed by a loss of sexual power, as diabetes, disease of the kidneys, dyspepsia, and other organic diseases.

Impotence may be produced by excess in indulging in coition repeatedly; diffidence, over-anxiety, awkwardness in the male, or from something disagreeable on the part of the female. Such a thing happening the first night of a marriage, is very apt to lead the male to imagine that he is impotent; while, with a little sound advice, and to exercise a little restraint, matters will all come right.

It is not uncommon for men, at certain times, to feel a little incapable. Impotence may be produced by masturbation or excess in venery; these cases are easily recognized.

The system must be strengthened by a generous, nutritious diet; by cold bathing, both general and topical; by cinchona, iron, hydrastin, and other tonics, and stimulants may, in certain cases, be given with advantage.

As an adjunct to successful treatment, the patient should have the disease explained to him; his mental anxieties must be allayed; his associations must be of the most agreeable description; his confidence must be gained; moderate exercise in the open air, daily bathing, friction to the skin, confine himself to a most nutritious diet, and sleep on a hair-mattress. He must abandon sexual excitement as far as possible, and it cannot be too strongly impressed upon him not to let his thoughts turn in such a direction. He can aid materially in the treatment, and assist in the cure. In a large proportion of cases, the defect is rather in the mind than in the body, and it is usually rectified by attention to the above rules, with the administration of a few drops, daily, of equal parts of tincture of nux vomica, chloride of iron and cantharides, with the assurance of speedy recovery. In this way, confidence is restored, and the difficulty soon vanishes.

## DISEASES OF WOMEN.

**ADHESION OF THE LABIA.**—This sometimes occurs in infancy, or early childhood, as well as in adult life. The adhesions of infancy are feeble and easily broken up, and are trifling in their character. Usually, the mucous membrane of both sides is merely in strong coaptation. Perfect adhesion, from the urethra above to the fourchette below, is the worse form.

*The treatment* consists in separating the labia, by forcibly pressing each in opposite directions, until the adhesion gives way, and then in preventing their adhesion by a bougie well oiled. It seldom requires the use of the knife.

In the adult, adhesions may be met with involving all the vaginal cavity, and are often intractible, and seldom perfectly remedied.

It is decidedly the best plan not to interfere with them until the menstrual function fills up the vaginal cavity, and then our object should be to reach the accumulation with a trocar as near the middle of the adherent parts as possible, and then careful incisions should be made, as deeply as it may be safe, and the opening first made should be increased by bougies. If the opening is superficial, the cure will be rapid; if it is deep, it will be tedious.

**WOUNDS.**—The labiæ are sometimes wounded by accident, and torn during labor. If the wound is deep enough to reach the bulb of the clitoris, alarming hemorrhage may be the result. The mode of treatment should be directed to the suppression of the hemorrhage, and this is usually easily done, temporarily, by pressure with the hand; then compresses saturated with the perchloride or sulphate of iron, and these retained firmly by a bandage; subsequently, the dressing should consist of cloths saturated with a solution of permanganate of potash, and a cure effected by lint spread with the black salve.

The rents occurring in labor require merely cloths, saturated with the permanganate, applied, cleanliness and rest.

**SANGUINEOUS INFILTRATION OF THE LABIA.**—During labor, the arterial twigs give way and extravasate the blood into the loose structure of one of the labia. Sometimes the infiltration is great, and proves an obstacle to the expulsion of the head. Interference here is not justifiable. Nothing but a speedy expulsion of the child, and, afterwards, the muriate of ammonia lotion, or any cooling, evaporating lotion, will be sufficient.

**ABSCESSSES** in the labia are of frequent occurrence, and they generally run their course very rapidly; the heat, swelling and pain, are very great; the inflammation terminates in from six to eight days. They are caused by morbid conditions, uterine disease, leucorrhœa. The patients who suffer from this affection are, as a general rule, anemic, suffer from constipation and dyspepsia.

In treating such cases, cleanliness, bathing the parts several times daily with pure cold water, and using cooling injections per vaginam, applying tincture iodine to any indurated portion; if these do not succeed, then poultices of elm mixed with bi-carbonate of soda, and continue till suppuration is complete.

**RUPTURE OF THE LABIA AND PERINEUM.**—The perineum and labia may, or are, liable to be torn during labor. Many causes lead to these accidents. A straight sacrum, which allows the head to emerge from the pelvis farther back than usual. Rigidity of the perineum, an undilatable state of the external passage, frequently found in old primipara. A large, or an unusually ossified head or malposition, may also cause rupture.

The perineum may also be ruptured by the unskillful use of forceps: 1, *by not making the proper spiral change in the position of the head, so as to bring the occiput under the arch of the symphysis*; 2, *not causing this part to keep close to the symphysis, by raising the handles at the proper time to a sufficient extent*; 3, *the forceps may slip off the head, under powerful traction*; 4, *by elevating the handles of the forceps too much, the point of the blades may be brought into forcible contact with the perineum*.

The breach of substance varies very considerably; sometimes the rupture is complete, thoroughly breaking up the integrity of the perineum, sphincter ani, with prolapse of the viscera, and involuntary discharge of the contents of the rectum.

**Treatment.**—Prevention is always better than cure. When in labor, therefore, the perineum rigid, relaxes with difficulty; the use of relaxants, as the C. powder of lobelia, in small doses, every half hour; or, the inhalation of chloroform, steaming the patient over tobacco; the application of cloths, wrung out of hot water, to the perineum. The support to the perineum should be such as to keep the head close to the pubic arch, but not to retard its expulsion. No force should be used.

But if the perineum has been ruptured, paring the edges and sewing up the parts with the quill suture should be resorted to, as soon as lochial discharge has disappeared, and the strength of the patient will permit.

**DISEASE OF THE VULVA.**—Nearly all the varieties of skin disease are met with on and around the vulva, *erythematous, papular, vesicular* and *pustular* inflammations. They are the same as the diseases already described under the head of skin disease. There is, however, a distinct affection of the vulva, which has been termed—

**PURULENT VULVITIS.**—This affection is characterized by severe inflammation of the mucous membrane of the vulva, attended with minute points of ulceration, which vary in number from two or three to a dozen. These ulcers vary in size, are slightly excavated, and almost always covered with pus. The vulva is intensely hot, and bathed in pus or mucus. The inflammation extends upwards; the labia are swollen; there is also febrile excitement. To a superficial observer, it very strongly resembles gonorrhœa: swollen labia, burning pain, copious muco-purulent discharge, difficult and painful micturition. It is prone to prevail among children between ten and twelve years of age, resulting from a want of cleanliness, or application of irritants. It is intimately connected with the scrofulous diathesis, indigestion, constipation and ascarides. If not promptly checked, it terminates either in leucorrhœa or endometritis.



*Treatment.*—This should be constitutional and local. If febrile symptoms supervene, aconite and asclepin; the alcoholic vapor-bath; podophyllin and leptandrin, to act upon the liver and bowels; then following with alteratives and tonics. I esteem the following good: *R.*—Fluid ext. rumex crispus, iris versicolor and stillingia, āā ʒi; simple syrup, ʒiii; iodide potass, ʒss.—*M.* A teaspoonful every four hours. Alternate with teaspoonful doses of Huxham's tincture of cinchona.

The parts should be frequently bathed, and, as soon the inflammation is partially subdued, mild injections of permanganate of potash, or chloride of zinc, should be used.

We must have thorough hygiene, good ventilation, frequent and prolonged exercise in the open air, nourishing diet, perfect cleanliness.

If it has advanced to the ulcerating stage, touch the ulcers with caustic potass, and apply vinegar quickly, then pieces of lint spread with the oxide of zinc ointment, or the black salve.

**GANGRENOUS VULVITIS, OR NOMA.**—This affection is rare, it generally begins with an erythematous inflammation of the vulva, and the formation of one or two blisters, which break and rapidly run into gangrene and phagedena. This gangrenous vulvitis has been seen both in adults and children. The disease, in spite of the best treatment, runs rapidly to a fatal termination.

*Treatment.*—If the patient is seen early, destroy the sore with caustic potash, follow with injections of permanganate of potash, three times daily. *R.*—Pulverized nut-gall, half a drachm; pulv. hemlock bark, two drachms; boiling water, half a pint. *R.*—Warm castile soap-water; use both of these forms two to three times daily, with the small glass female syringe. Use the soap-water first each time to cleanse, then follow with the first.

To allay painful itching, apply to the part a soft piece of linen, wet with alcohol and water, or weak solution of the acetate of lead. Keep a yeast poultice constantly applied, and, to prevent the destructive metamorphosis, put the patient upon quinine, milk punch, and large doses of chlorate of potass—thorough hygiene, disinfectants in the apartment; otherwise enforce the treatment of phagedena.

**PRURITUS PUDENDI.**—An intolerable, often obstinate affection of the genital organs—an inordinate itching of the vulva. The itching returns by paroxysms; she may be free of it until before, during and after menstruation; or the patient may be free from it until she reaches a fire, when extremely annoying—there is an irresistible desire to scratch, which the most delicate propriety can hardly restrain. At other times the sensation is experienced as if thousands of pediculi were crawling upon her person.

*Treatment.*—In this affection the best thing to be done is to regulate the secretion of the skin, kidneys, and bowels; then put the patient upon an alterative course; if digestion is weak, the bitter tonics; if anemic, iron; an alterative course is the true one.

Locally, perfect cleanliness; the parts, externally and internally, must be subject to thorough and repeated ablutions, syringing several

times a day. Several remedies are employed for this purpose, the best being ten grains of the permanganate to a quart of water; and alternate this with an infusion of lobelia,—one of them every hour. If this, in three days, does not succeed, try strong injections of borax, or a solution of hydrocyanic acid,—ten drops to the ounce of water; and when not injecting, keep applied to the parts an ointment of chloroform or iodide of lead. Always alternate the remedies. In some cases it is obstinate, and requires patience as well as ingenuity, with thorough, active constitutional treatment.

**URETHRAL EXCRESCENCES.**—Carbuncles, vascular tumors, warty excrescences, &c., are names given to small tumors, springing from the urethral orifice, or from the lining of the urethra itself; generally solitary, although there may be several. They assume every variety of shape, color and size; they differ, also, in their anatomical character, but generally consist of hypertrophied, normal tissues. The most common variety is a blood-red excrescence, projecting from the mouth of the urethra, attached by a small neck. The passage of urine causes the most excruciating pain and tenesmus, the patient straining for several minutes after the passage of the urine. Its cause would seem to be a want of cleanliness.

The treatment is simple; complete destruction by caustic potash, and afterwards dressing with oxide of zinc ointment.

**VAGINITIS.**—Acute vaginitis commences in the lower part of the vagina, with heat, swelling, pain, redness, and dryness of the mucous surfaces of the labia, vulva and vagina. Difficult, painful micturition, pain in passing fæces, sense of weight in the pelvis, tenesmus. Pain in the back, pain radiating down the thighs into the hips, up the spine to the head. There may be febrile disturbance. In about two days, a profuse discharge appears, which is muco-purulent in its character. The inflammation quickly involves the urethra, bladder, mucous membrane of the cervix uteri.

*Cause.*—The disease is not common, and frequently arises from abuses, injuries, want of cleanliness.

*Treatment.*—This should consist in attention to the secretions; then put the patient upon fifteen-drop doses of cannabis sativa every three hours, and alternate this with gelsemin, to procure sedation.

Perfect rest, in the recumbent position; the parts should be bathed every few hours with tepid milk and water, and the mucilage of elm should be constantly applied.

As soon as the discharge becomes copious, yellowish or green, and the swelling has subsided, then iodide potass, stillingia, cinchona; and injections every evening of castile soap and water; in the morning and afternoon, use the infusion of red raspberry-leaves, or green tea, witch-hazel, or other vegetable astringents.

It frequently assumes a chronic form. The treatment not essentially different: a persevering use of alteratives and tonics.

**PUERPERAL VAGINITIS.**—It might seem unnecessary to enumerate this as a distinct form of vaginitis, occurring after labor. In some cases of labor we may have such a termination, such as long detention of the foetal head in the pelvis, interrupting its circulation for several

hours; when removed, violent reaction will be the result; the awkward use of instruments. Generally speaking, it is the fibro-cellular structure that is implicated, which gives rise to deep sloughs and ulceration, which open into the bladder or rectum, and causes vesico, or recto-vaginal fistula, cicatrices, &c.

*Symptoms.*—When injurious pressure or the forceps has implicated the integrity of the walls of the vagina, then we have the patient complaining of severe pain, with soreness and heat. There is febrile disturbance, arrested secretions, discharge from the vagina, which soon becomes fetid; the labia excoriated, while the heat in the vagina is great; mucus, pus, shreds of decomposed substances increasing the fetor.

The pulse becomes accelerated, very rapid, wiry; tongue brown and dry; the teeth foul and incrustated; the skin bathed in a copious perspiration. In a week or so we have other symptoms appearing, as evacuation of urine by the vagina; at first in small quantities, which produces excoriation and inflammation, and a very slow and uncertain convalescence succeeds, with a permanent vesico-vaginal fistula; or it may be the fæces pass through the vagina in a few days, and then we have a recto-vaginal fistula. If neither of these evils occur, we may have extensive ulceration, which terminates in strictures or occlusion.

*Treatment.*—In this form of vaginitis, the greatest damage is usually on the bladder and rectum. Where such a condition is suspected, the bladder should never be allowed to become distended—the urine should be drawn off every three or four hours, and if there was a suspicion of any tendency to softening or rupture, it might be prudent to keep the catheter in steady for a few days. There can be no doubt but that, if early attention was bestowed upon this matter, we would have a highly diminished rate of vesico-vaginal fistula. The rectum should be attended to by frequent enemas, never allowing accumulations. The vagina should be syringed by a lotion of permanganate of potash, and the parts well protected and lubricated with sweet oil.

Reformed physicians appreciate well the averting the terrible accidents which result from the sloughing and ulceration in these cases.

**VESICO-VAGINAL FISTULA.**—This is one of the most distressing and deplorable of all infirmities to which a female is liable; it is not necessarily fatal, but its existence renders life miserable.

*Causes.*—Tedious labors, the long continued pressure of the foetal head on the maternal passages produces sloughing of the walls of the vagina; it may be directly caused by the forceps.

The situation of the fistula is usually at the base of the bladder, where it rests on the vagina—sometimes higher.

*Their extent* is various; sometimes so small as to permit the urine to escape only by drops; at other times, they are so large as to admit a free passage of water; they are usually single, sometimes double.

The shape of the opening is usually round or oval; in some cases, irregular.

*Diagnosis.*—This is always easy; the constant flow of urine through the vagina, instead of the urethra, is always sufficient to decide the

existence of fistula. It is true the aperture may be small, but it never can be mistaken.

*Prognosis.*—This is favorable under the improved mode of treatment.

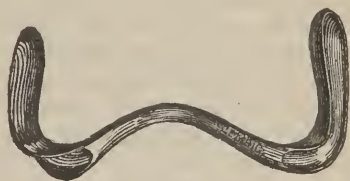
*Treatment.*—The old treatment consisted in introducing a catheter into the bladder the moment the fistula was discovered, and leaving it to prevent the accumulation of the urine, in the hope that in the contraction which ensued after the sloughing, the fistula might close. This simple means has succeeded, and cases where the opening has been intentionally made for the removal of stone, have also closed in this manner.

Caustics, the actual cautery, the insertion of a gutta-percha ball, and various other modes of operative procedure have been tried, but without beneficial results.

But the brilliant success of the button-hole suture, in the radical cure of this disease may be ranked among the greatest discoveries of modern times.

Before resorting to this operation, the health of the patient should be improved by a judicious attention to diet, tonics and hygiene; get the patient into excellent health, so that the healing process may be rapid, and twelve hours before the operation, a cathartic to freely unload the bowels. When these, and all the necessary preliminaries have been accomplished, we should have the patient near a window, with the best of light, (if possible, choose a clear bright day for the operation;) then put the patient on her left side, or on her hands and knees, and gently introduce the duck-bill speculum, (*Fig. 87.*) and the fistula will come into view.

I have operated on patients without anæsthetics, and prefer that mode of operating, unless the patient is very nervous, getting along much better. If anæsthetics are given, four or five assistants are indispensably necessary, otherwise three will be enough.



*Fig. 87.*

One for the speculum, to keep aside the labia and hold up the end of the wires; another to take charge of the sponges, and the third the instruments. Then the essential points are:

- 1.—Paring the edges of the fistula.
- 2.—Then the introduction of the stitches.
- 3.—The raw surfaces are to be brought into apposition, by silver, lead or platinum-wire stitches, and then the clamp or shield applied.

All through the case a proper sized catheter should be kept constantly in the bladder.

In operating, I prefer seizing the edges of the fistula with the tenaculum at its remote angle, then pare the edge as far as possible with a spear-shaped knife, which is the best here; pare the edges well, bevel them off from the vesical margin, so as to have a large surface for adhesion; go round the aperture bit by bit, have the edges even and thoroughly denuded of mucous membrane. Then, having cleansed



away all clots of blood, and the bleeding having ceased, introduce the sutures, which is easily effected by a simple pair of notched forceps, which answers the purpose remarkably well, or a needle made for the purpose. It is proper to begin at the edge of the wound most remote and difficult to reach. The needle is to be introduced first into the lip of the wound, by starting it in about half an inch from the freshened edge, dipping it down, so as to make the point come out in the denuded portion, just at the junction of it and the vesical mucous membrane. The needle being brought through at this point, is again inserted in the opposite edge, corresponding, as nearly as possible, with that part whence it emerged, and carried forward far enough to emerge half an inch beyond the edge of the wound, and drawn through. The ends of the wire, thus brought through, are held by the assistant engaged with the speculum. The next suture is to correspond with and be placed within two lines of the first. They are thus to be placed in sufficient numbers to close the wound completely. Having thus inserted all the sutures, then isolate the one which is the nearest, and seize both wires and twist them until the wound is evenly coapted; then the next, and so on with the others; but the greatest possible care and nicety must be observed to see that the closure is perfect, and that the edges of the wound are drawn evenly and smoothly together.

Time, watchfulness and good judgment are essential. The sutures must not be twisted too much nor too little; even coaptation is all that is necessary. Then the catheter should be introduced and retained in the bladder, and with this proceeding, giving the patient a grain of opium two or three times daily, the operation may be concluded and be successful. But I am partial to a little improvement in this operation, and that is, the clamp or button-hole suture. This button, or shield, consists of an oval piece of lead, or flexible lead rendered concave on the surface which is to lie next the wound, and perforated along the ridge with a row of holes corresponding to the number of stitches used. The ends of the wire sutures having been brought through these holes, the button is pushed down along them, and shaped or adapted to the part by a special instrument—the button-adjuster. Then, small pellets of lead are passed over the ends of each suture, and afterwards pushed down close to the button, and tightly compressed by means of a pair of strong forceps. By this excellent contrivance, the parts are settled, and consolidated in one direction, at least; for all motion is prevented longitudinally or lengthwise in the direction of the wound.

The after-treatment will consist in locking up the bowels for a week by opium, injecting the vagina twice daily with castile soap and water. The patient should have good diet, small in quantity, but rich in nutriment, and about the tenth day the sutures should be withdrawn.

**RECTO-VAGINAL FISTULA.**—This accident is not so common as vesico-vaginal fistula, nor so distressing. The passage of the *faeces* is not so irritating, nor so productive of inflammation and excoriation as the urine, and a cure is more easily attained.

It is generally caused by accidents with instruments, more rarely by stricture of the rectum, abscess of the recto-vaginal septum, &c.

The symptoms and diagnosis of this fistula are so obvious, that it is unnecessary to describe them.

*Treatment.*—If the fistula is not extremely large, a cure can be easily effected by touching its edges every day freely with strong nitric acid, and, after the application of the acid, place a piece of fine sponge over the aperture, and keep it constantly applied only when injecting the vagina, which should be done at least thrice daily. The application of the acid must, in all cases, be made through the swan-bill speculum.

The important points to attend to during the treatment are, proper attention to the bowels, cleanliness, and maintenance of healthy granulations until the contraction formed by new granulations, fresh deposits of lymph, obliterate the opening.

The diet should be concentrated: beef essence, milk punch, eggs, oysters, wine, tonics.

The parts should be examined daily, and touched with the acid; and if the cure is tedious, try the same operation as that described under vesico-vaginal fistula. If the operation is only partly successful, the treatment by the acid should again be commenced and persevered with. If a highly irritable state of the sphincter ani exists, amounting almost to a spasmodic action, I have succeeded well by the introduction of a gutta-percha speculum, smeared well with ointment of belladonna. This will relieve the difficulty, besides giving an outlet to gas, and is a much better practice than cutting the sphincter ani. Recto-vaginal fistula is easily cured by the above treatment, but time and patience are absolutely requisite.

## MENSTRUATION AND ITS DISORDERS.

Several conditions are essentially necessary to the healthy performance of the functions of menstruation.

The ovaries must be present, and they must be sufficiently healthy to produce ova.

For the elimination of ova, the uterus must be of the proper size; in other words, it must be perfect, anatomically and physiologically.

A healthy condition of the blood, a normal condition of the nervous system, and a perfect harmony in all the great secreting organs.

These conditions, then, existing in a healthy female, of the proper age, we have menstruation.

That is, the organs of generation being perfect, the blood and nervous system being at a proper standard, an ovum will be produced, matured, and cast off by the ovary. All the organs of generation are intensely congested by the increased energy of the capillary circulation; the congestion of blood upon the delicate capillaries of the mucous membrane of the uterus become so great, so intense, that an effusion of blood takes place in the cavity of the uterus, which, finding its way out of the vagina, is called *menstruation*. If ovulation does not take place, the congestion does not occur, and, in the absence of congestion, there is no effusion. If the function of menstruation is

perfectly performed, there should be no pain, and only a moderate degree of activity. If absent, deficient, painful, excessive, the function is deranged.

Menstruation may be considered under three heads: *amenorrhœa*, *menorrhagia*, *dysmenorrhœa*.

Under these heads may be included all the deviations met with in the usual run of practice.

**AMENORRHŒA.**—This simply means the absence of menstruation, and may occur under several different circumstances.

This may be considered in several varieties; one in which the menses do not begin to flow about the natural period; the other, where, after having made their appearance, they cease to return at their usual periods. The term *retention* has been applied to the one, that of *suppression* to the latter. Suppression of the menses may arise from a natural cause, as pregnancy, or from debility, resulting from a loss of blood from a chronic or acute disease, mechanical obstructions, inordinate discharges or excesses, muscular exertion; it may occur suddenly from violent emotions of the mind, exposure to cold, damp baths, or any other cause which abruptly shocks the system.

The symptoms which follow suppression, are usually more acute and dangerous than those of retention of the menses. It is not uncommon for the former to induce serious hemorrhages from the lungs and stomach; also, inflammation and congestion of the brain, lungs, uterus and liver; while, in the latter, the symptoms arise so gradually that the organism would seem to adapt itself to the morbid condition, and thus escape the inflammatory and febrile attacks which are so common in suppression. Suppression occurs in the most robust constitutions, as well as the weakly; retention usually follows as a consequence of original delicacy of constitution. A large number of cases are met with where the secretion takes place, and is retained in the uterus, by some mechanical obstruction, the blood preserving its fluidity and freshness for a long time, owing to the exclusion of the oxygen of the air, which favors decomposition.

**Causes.**—Delicacy of constitution, natural or acquired, lymphatic temperament, highly sensitive nervous system. Indeed, a proper amount of stamina, vital, nervous and physical energy is essential to the healthy performance of the uterine function, as well as every function in the body. Malformation of the uterine appendages often opposes an obstruction to the passage of the menstrual function. Pregnancy is a cause of suppression, a natural cause; its constitutional effects are sometimes violent, as we have manifested by nausea, morning sickness, &c., troublesome and annoying symptoms to the patient. Cold is a very frequent cause, insufficient clothing, thin soled shoes, violent emotions of the mind, severe physical exertion.

**Prognosis.**—Retention, proceeding from a natural lack of constitutional vigor, is always difficult to cure; but where no serious organic difficulty exists, ultimate success is certain. In cases accompanied with chronic diseases of the heart, lungs, liver, the prognosis is more unfavorable. Retention from imperforate os uteri, or from vaginal adhesions, &c., are readily cured by surgical means. Obstructions,

which are consequences of mental emotion or exposure, are speedily restored by suitable means. Menstruation may have made its appearance, and after having occurred, may have been suppressed, and this suppression may be attended with acute symptoms. There may be merely a scantiness.

In acute amenorrhœa, we have all the symptoms of inflammation of the uterus; in retention, the patients suffer from imperfect sanguification, inability to exercise, palpitation of the heart, shortness of breath, torpid liver and bowels, want of appetite, or depraved appetite, the surface is pale, and there is a general feeling of languor. Tuberculosis is a cause of amenorrhœa; congenital atrophy of the uterus is a frequent cause. In these cases, the patient may enjoy sexual intercourse; she may have monthly pains, signs of menstrual congestions. Amenorrhœa from anemia may be easily cured; when from inflammation, it yields to appropriate treatment; in the absence of the ovaries, no good can be done.

*Treatment.*—In the management of amenorrhœa, it is well to bear in mind, that it is almost invariably a symptom of some other disease, or more generally it owes its origin to a general lack of constitutional vigor, and our first attention should always be directed to the removal of the cause upon which it depends. All cases of retarded menstruation derive benefit from well-regulated exercise, nutritious diet, change of scene, sea-voyage, bathing. Retention from mechanical obstruction can only be cured by mechanical means. Suppression or obstruction, unattended with any serious complication, originating from exposure to cold, mental emotion, suddenly checked perspiration, cold drinks, &c.; we can afford prompt relief by the employment of appropriate remedies. What we have principally in view in the treatment of this complaint is, to remove the constriction which affects the extremities of the vessels of the uterus; and this is best done by the use of relaxants, anti spasmodics, and uterine stimulants, with the exception of cold bathing and tonics, which are specially indicated where the suppression is symptomatic of debility. We might mention the following medicines, which will meet the symptoms: betin, macrotin, sabina, pulsatilla, gossypium, iron, serpentaria, sulphur, myrrh, &c. In suppression from cold, I have found the following formula of great value: *R*.—Sulphur, ʒi; bi-tartrate of potassa, ʒii; Holland gin, Oss.—*M*. A tablespoonful morning and night. If not effectual, give aconite during the day. If the patient be strumous, gossypium, betin, or macrotin, might be used. If there is a tendency to hysteria, languid circulation, dormant liver, constipation, derangement of the stomach, pulsatilla might be substituted with advantage. Sabina is a useful remedy where we have a dormant, but congested condition of the uterus. A good formula is the following: *R*.—Extract sabina. ʒss; betin, macrotin, podophyllin, myrrh and aloes, āā ss; mucilage gum arabic, q. s.—*M*. To make three-grain pills; two morning and night. If the indications are, constitutional debility, natural or acquired, with all its symptoms or cachectic characteristics, as soft, flabby muscles, emaciation, different respiration after exercise, palpitation of the heart, lassitude, debility, general indisposition,



transient pains, impaired hepatic function, feeble appetite, leucorrhœa, then the grand remedies are, iron and cinchona. The following combination I have used with great success, in suppressed and obstructed menstruation from a variety of causes. I give it to the profession as a never-failing remedy: *R*.—Extract betin; extract ergot; extract colocynt; extract sabina; extract aloes; iodide of potassium,  $\text{aa}$   $\text{℥ss}$ .; podophyllin,  $\text{℥i}$ ; gossypin,  $\text{℥ss}$ .; eubebs,  $\text{℥ii}$ .; oleum piper nigrum,  $\text{q. s.}$ —*M*. Make three grain pills; two morning and night.

As relaxants, warm water may be applied to the region of the pubes and adjacent parts, or warm vapors, by making the patient sit on a vessel filled with hot water; by applying mustard plasters to the areola of the breasts; and, in order that these applications may have the desired effect, they should be employed at the time when nature is about to exert her functions, which may be known by a sense of fullness in the organs of generation, a weight in the back and loins, and slight spasmodic pains in the uterus. Mustard pediluvium is also a good auxiliary. Where we have catamenial irregularities in serofulous, rickety and syphilitic patients, the iodide of potassium, in some form, will be found serviceable. It may be given alone or combined with tincture of iodine, or with hellebore nigrum. If amenorrhœa is associated with epilepsy, then the above emmenagogue pill, in alternation with bromide potassium and apiol, is specially indicated. If the affection be due to some rigidity or inaction about the uterus, or any of its appendages, no remedy can surpass belladonna, stramonium, or the key-tse-sing. The latter remedy is a valuable addition to the materia medica—one well-calculated to meet the indications of nearly every case. In obstructed menstruation from cold, any of the above may be used; but a very simple remedy with me consists in giving the tincture of water-pepper, in tablespoonful doses; it possesses a decided action on the uterus. If this alone is not successful, alternate it with a pill containing macrotin, ergot and rue, with an alcoholic vapor-bath; or give five to ten grains of the extract of chenopodium olidum, night and morning. Where amenorrhœa is uncomplicated, there is no remedy more reliable than the senecio; it operates kindly, without any excitement, and the catamenial flow is restored in a manner so natural that the patient is seldom aware of the cure.

In anæmia, depending upon amenorrhœa, the general characters of the blood are analogous to those of anemia, generally, white cell. Loss of blood from any cause appears to lead to the same morbid condition of that fluid as the defective secretion or elimination of certain principles which ought to be separated, from it. This condition is always fulfilled in amenorrhœa, which disease is by far the most frequent cause of anæmia. An alteration in the blood may be brought about by loss of blood, or by the opposite condition of suppressed menstruation. For this condition, vallet mass, or pyrophosphate of iron, betin, serpentaria, gossypin, electricity, alternated with the following prescription: *R*.—Tincture hellebore nigr.,  $\text{℥ss}$ ; tinct. myrrh,  $\text{℥i}$ ; tinct. lyttae,  $\text{℥ii}$ .—*M*.

As the large proportion of cases of amenorrhœa have their origin in some constitutional defect or vice, and are, in reality, but new

symptoms of some other affection, it is of great importance that our attention be directed to all the remote and slight symptoms which may exercise an influence upon the economy, as well as to the more immediate and visible signs of the malady.

*Local emmenagogues.*—The best of these is the insertion of Simpson's uterine sound three or four days prior to the period, if that is known. The next best is electricity. In the application of this agent, the positive sponge should be planted on the back of the neck while the negative may be applied about the breasts, over the solar plexus, the right and left ovary, the inner sides of the thighs to the knees, for about twenty minutes; then both electrodes over the abdomen; then one to the spine, the other to the abdomen. Awaken uterine action by reflex movements. Instead of the above, let the positive pole rest on the lumbar region of the back, at the roots of the spinal nerves; then, with the negative, bathe the lower bowels with sharp currents. This is the most successful method.

*CESSATION OF THE MENSES.*—The period of life at which menstruation ceases is always a very critical one to women, as the constitution then undergoes a most vital change; and it not unfrequently happens that chronic complaints then arise, which often create much disturbance, and frequently terminate fatally.

The menses seldom cease all at once; but, for some time before their final disappearance become somewhat irregular, both as to the periods and the quantity.

When they happen to disappear suddenly, in women of plethoric habits, such patients should be careful to restrict themselves to a more spare diet than usual; take regular exercise, keep the secretions free, and small doses of aconite, in alternation with cinchona, hydrastin, and the C. syr. caulophyllin and bethroot be perseveringly used.

At the cessation of the menses, I have derived the greatest benefit from putting the patient upon a thorough alterative course for a length of time.

*VICARIOUS MENSTRUATION* is often met with in amenorrhœa. It is an effusion of blood without reference to location. It usually occurs at the menstrual period. The most favorite or common locations for this vicarious discharge is the nose, mouth, breast, skin, or an ulcer, if it exists.

The only treatment successful is the one which will bring about a healthy return of the menses.

*DYSMENORRHŒA.*—Painful or difficult menstruation, accompanied with severe pains in the back, loins, and region of the ovaries or uterus, appears in different forms, and originates from various causes. We meet with it connected with derangement of the digestive organs, occurring in gouty or rheumatic diathesis; we meet it in an hysterical and neuralgic form, in conjunction with an inflammatory action of the uterus, rigidity of the os and cervix uteri, as well as ovarian irritation.

The usual symptoms attending dysmenorrhœa are: severe bearing-down pain in the uterine region, resembling the pains of parturition, coming on in paroxysms; constant aching in the small of the back,

also in the loins, pelvis and limbs; accelerated action of the heart and arterics; flushed cheeks; headache; cutting and pressing pain in the abdomen; flatulence; spasmodic sensation in the region of the stomach; nausea; eructations; oppression in the chest; anxiety and irritability. The severest form is the neuralgic, and this usually depends on ovarialgia; deep-seated, neuralgic in character, amounting to inflammation and neuralgia of the ovaries. The neuralgic occurs most frequently in unmarried females, or in married women who are childless. In those cases, both the sterility and painful menstruation are usually dependent on ovarian disease. The congestive form usually occurs in patients of the sanguine temperament; the other forms are met with indiscriminately.

The general cause of dysmenorrhœa appears to be some derangement of the healthy organs in rheumatic, nervous, or psoric constitutions. It is a disease that becomes more prevalent as civilization progresses, being entirely unknown in the savage and half-civilized. Another cause is rigidity, or unnatural smallness of the neck of the uterus; and when the painful symptoms do not yield to the appropriate remedies, an examination may reveal this condition to be the cause, which is easily rectified by surgical means. The other causes which might be noticed, are membranous and mechanical dysmenorrhœa. Some authors recognize the following division: *inflammatory, neuralgic, and membranous*.

*Treatment.*—Inculcate exercise in the open air; regular hours, a plain regimen, thorough hygiene, are essential conditions to the successful treatment. An equalized circulation, secretions regular, are essential to a normal condition of the organism. In dysmenorrhœa our range of remedies is abundant. Belladonna is an admirable remedy, when the patient is of a plethoric habit and sanguine temperament, and the disorder depends in any way upon mental emotion or a determination of blood to the brain; or if it depends upon rigidity of the os, or a neuralgic or congestive condition of the cord, there is no remedy that can be compared to it. This valuable remedy I usually prescribe in the quarter of a grain of the extract, in pill twice daily, for two or three days prior to, or about the menstrual period. In urgent cases, every two hours, according to circumstances, and I never have been disappointed in its results. It may produce disturbance, but its action is decided and efficacious. This is also a good remedy to give in alternation with aconite. Keep it applied as a plaster over the kidneys. If dysmenorrhœa is kept up by ovarian or uterine congestion, with marked febrile symptoms, aconite is invaluable; and if the patient is of the leuco-phlegmatic habit, pale and chlorotic in appearance, we might alternate it with pulsatilla, and then given in one-eighth of a grain dose of the extract every three hours, and continued and gradually increased, till a perfect cure is the result.

*Ergot* is applicable to that variety in which the menstrual discharge is sufficient, but is attended with slow passing, severe bearing-down pains in the uterine region, cutting pains in the back, loins and thighs, pressure in the groins, cramps in the abdomen, blood dark and containing membranous shreds; it is magical in its effects. It might be



combined with caulophyllin, betin, &c., and counter-irritation to the sacrum by the veratrin ointment.

*Nux vomica* is valuable in scanty and painful menstruation, from uterine congestion, arising from scybalous accumulations in the colon or rectum. The pains are of a spasmodic character, and extend from the uterus to the neck of the bladder.

*Pulsatilla* operates well in dysmenorrhœa, if the menses are scanty, with cutting pains in the uterine region, back and loins, with vertigo, loss of appetite, chilliness, nausea, discharge thick and black, alternating with short discharges of bright blood. Helonin, caulophyllin, gelsemin, macrotin, are all excellent agents, and are specially indicated where we desire to produce uterine contraction, and to facilitate excretion of the menstrual fluid; they may be combined with ergot, pulsatilla.

*Borax* is specially adapted to a class of cases in which no organic disease exists, but which, occurring in robust subjects, are attended with fever, pain in the loins, the expulsion of flakes and shreds of lymph, and other symptoms of active congestion. In dysmenorrhœa the senecin is a good remedy—the most beneficial results are obtained by exhibiting it during the intermenstrual period. It acts as a special tonic upon the uterine system; invigorating the menstrual function, and restoring equilibrium of action. If the secretion be scanty, senecin and macrotin made up into pill form, with vallet mass.

*Iodide potassium* is valuable when the disease assumes the rheumatic or rheumatic-gouty character, given with cornin and colchicum. I have derived the greatest benefit from the *cimicifuga racemosa*. It, when properly managed, will nearly, in every case, be successful in dysmenorrhœa. Indeed, I esteem the black cohosh, combined with the bromide of potass, as nearly a specific as can be for the gouty and rheumatic forms, either alone or in combination with an alkali, as borax. Bromide of potass possesses a sedative action on the generative organs, possessed by no other drug, and its judicious use in this disease is pre-eminently indicated. But there is a form of dysmenorrhœa that is exceedingly common, depending on a physical imperfection of the uterine neck; on contraction of the os internum, or the canal which constitutes the cavity of the cervix. This contraction may be either congenital, or the result of inflammation. The peculiar form or character of the dysmenorrhœa, when caused by congenital contraction, is the absence of any uterine symptoms during the interval of menstruation, and intense agonizing pain for a few hours before the flow of blood appears, either then disappearing or lasting throughout the period. The cause of the pain experienced under these circumstances is evident. As soon as the catamenial secretion commences from the lining membrane of the uterine cavity, unless the blood finds a free exit through the os internum and the cavity of the cervix, it distends the uterus, and gives rise to great pain. The obstruction may be merely at the os internum, spasmodically contracted; in which case, as soon as it has been overcome, the blood escapes freely, and pain disappears; but if the os be permanently contracted, or the contraction exists in the cervical canal, the pain may continue throughout



the catamenial period; now this state of things may be palliated, but seldom removed by medical treatment. The avoidance of atmospheric vicissitudes, warm hip-bath, warmth about the pelvis, the exhibition of chloroform by inhalation, and anti-spasmodics generally. If from an indurated or rigid neck, this affection is easily and successfully rectified by slitting up the neck of the uterus sufficient to permit an easy flow of the menses.

In membranous dysmenorrhœa, the exhibition of alteratives, as rumin and stillingin, with iodide potass alternated, either with gold or platinum, and the use every day, or every other day, of the medicated injection into the uterus, say of a few drops of tincture of iodide to two ounces of water, or a few grains of iodide of potass, to the same quantity, will be attended with most excellent results.

The use of the bromide of potass has also been attended with excellent results.

**MENORRHAGIA.**—A flow of the menses is to be considered as immoderate, when it either returns more frequently than what is natural, continues longer than ordinary, or is more abundant than usual with the same person at other times. With the extraordinary flow of blood there is usually pains in the back and abdomen. The causes of menorrhagia may be referred to a plethoric state of the system, or general fullness of habit, excess in eating and drinking, scrofulous, syphilitic or psoric taints, an ardent, sanguine temperament, relaxed habit, irritation, congestion, or inflammation of the secreting vessels of the uterus, the various disturbances and accidents of pregnancy, organic affections, as scirrhus, ulceration, stimulating drinks during the catamenial period.

An immoderate flow of the menses, arising from plethora, is often preceded by headache, giddiness or dyspnœa, and afterwards attended with pains in the back and loins, some degree of thirst, universal heat, frequent, strong, hard pulse, sense of weight and pressure in the pelvis, chilliness, unnatural determination of blood, cold feet, rapid pulse, and impaired appetite.

The peculiar condition of the blood in the hemorrhagic diathesis, as well as a peculiar morbid condition of the uterus and spinal cord, are prominent causes. I have met with a large class of patients who are supposed to suffer from menorrhagia, when, in reality, it is a monthly abortion they suffer from.

In mild cases of menorrhagia, the patient only experiences a general sense of lassitude, debility, weariness, faintness, paleness of the face, cold extremities, feeble respiration. In more serious cases, the patient becomes ex-sanguineous; the face, hips and surface become blanched; the muscular strength entirely prostrated; every attempt to move or converse induces syncope; there is more or less determination of blood to the brain; vision is impaired, muscæ volitantes, oppressed respiration, general coldness of the surface, great and undefinable uneasiness and irritation. The blood flows upon every exertion to change position, and on coughing, sneezing or vomiting. After the patient has become reduced by its loss to a very low state, frequent and protracted fainting comes on; respiration and circulation become almost

suspended; coagulation takes place in the uterine vessels, and the hemorrhage may be arrested.

As soon as reaction takes place, the clots formed in the vessels are expelled by the contractile efforts of the uterus, and the flowing reappears.

Menorrhagia, originating in organic derangement of the uterus, like induration from cancers, tumors and ulcers, requires to be specially attended to.

*Prognosis.*—A favorable termination may be expected when no organic affection exists; the circumstances which must render our prognosis unfavorable are, chronic induration or softening of the uterus, cancerous and other incurable ulcerations and tumors, and morbid growths within the viscus.

*Treatment.*—In slight cases, it will be sufficient to restrain the circulation, drinking cool drinks, keeping the chamber of a moderate temperature, light covering, the application of a pad over the uterus, and, over and above all, a broad roller, avoiding the erect posture and all exciting causes. If it is due to a laxity of the vessels, we must resort to more active means. Linen cloths, dipped in vinegar, and kept constantly applied to the vulva and surrounding parts, have a powerful effect in many cases of uterine hemorrhage. Then some suitable remedy should be selected to meet the indications.

Oil of erigeron has been much used internally in menorrhagia, and experience has demonstrated it to be a very valuable remedy. On such occasions, ten to twenty drops, beat up in sugar, repeatedly given, possesses the power of not only arresting the flow, but toning up uterine power.

*Gallic acid* is most successful, given at suitable intervals, in proper doses.

*Tincture cannabis indica* is a powerful medicine; in large doses it often succeeds in checking the most obstinate cases. In the sanguine temperament, it acts like magic.

*Cannabis sativa* acts same as the above, and is a useful agent.

Belladonna is an excellent remedy, if we have a state of congestion or irritation; it may be alternated with pulsatilla. If we discover a want of tone in the uterus, then five-grain doses of ergot, in alternation with cinchona et ferrum, are indicated, when the hemorrhage depends on an asthenic condition of the uterus. In that class of cases where *anemia* is the characteristic, where we have an atonic condition of the uterus, where everything points emphatically and conclusively to debility and exhaustion, our concentrated remedies are of great and proved value: as the lycopin, trillin, hamamelin, Collinsonin, helonin, senecin; they are appropriate and efficient remedies in all relaxed conditions of the organ. The experience of the entire profession enables them to appreciate these remedies in profuse, exhausting discharges. Ergot, in alternation with turpentine, is often excellent.

Digitalis has a very beneficial effect. My mode of administration has been either to combine it with the extract of chamomile or hyoscyamus; give it in large doses. Where we have induration or cancer of the uterus, the iodide potassium in the C. syr. stillingia.

Various other remedies have acquired a repute in this affection, as R.—Sulp. quinine, grs. xxx; aromatic sulphuric acid, diluted, ℥i.—M. Thirty drops, in a wine-glassful of water, every three hours. Creosote, phosphoric acid, sabina, nux vomica, cinnamon.

Cases occasionally occur, however, where the hemorrhage is profuse, and resists every remedy; and then I have found the practice of injecting the cavity of the uterus with such agents as the sulphate of iron, or a solution of Monsul's salt, or infusion of nut-gall, phenol sodique; a two-ounce injection, and repeating it, if necessary, to arrest the attack; then, every other day, injections, both cleansing and astringent, as may be necessary.

This can be easily done with such an instrument as the following, (*Fig. 88.*) or with other patterns, and the injections might consist of the



Fig. 88.

following: Pond's extract hamamelis, ℥i, to ℥ii of water; iodide potass, or chlorate or permanganate potass, grs. iii, to aqua, ℥ii, &c., &c.

The practice of administering astringent remedies, as alum, matico, iron, &c., &c., is not attended with that amount of success which renders them proper agents to be recommended.

Where menorrhagia proceeds from a scirrhus or ulcerated state of the uterus, the only course of treatment, which has a shadow of success, is an alterative one, C. syr. stillingia, with iodide potass, alternate with the C. tincture of cinchona or hydrastin; injection per vaginum of solutions of permanganate potash, nitric acid, chlorinated soda. Conium and hyosciamus should be resorted to every night.

In those cases where menstruation becomes profuse, continues longer than usual, or returns more frequently than what is natural, in consequence of general laxity in the system, it will be proper for the patient, during its intervals, to resort to a tonic course, as cinchona, hydrastin, iron, phosphorus.

To assist the effect of these remedies, the use of the hip-bath, together with general exercise, warm clothing, and a nutritious diet.

When, from great weakness and relaxation in the uterine parts, the patient is troubled with a profuse menorrhagia, the use of salt water, salt-water hip-baths, injections of solutions of witch-hazel, cinchona, hydrastis, &c.

Menorrhagia, during pregnancy, is best controlled by cinchona, gold thread, gallic acid, sitz-bath, the application of the emplastrum ferri over the region of the kidneys.

These remedies failing, viburnin, trillin, lycopin. Helonin may be tried with some hope of success. The senecin is a great remedy in the treatment of menorrhagia. This may seem strange, nevertheless, it is correct.

In menorrhagia, there is a relaxed or enfeebled condition; it is necessary to establish functional equilibrium, and if we can but restore and equalize the functional activity of the parts, we can effect a cure.

A tonic alterative course, with the judicious use of the uterine syringe, will cure nearly all cases.

**CHLOROSIS.**—The cause of this disease seems to be a want of power in the system, arising from weakness to propel the blood into the uterine vessels, so as to allow of a discharge of blood from them; but the origin of the weakness is unquestionably in the blood, and behind that in the nervous centres. Young unmarried females, of delicate lymphatic constitutions, are most liable to its attack. Chlorotic patients are remarkable for delicacy of organization. It has all the symptoms of dyspepsia, disease of the heart, abdominal derangements. In a pathological and therapeutic point of view is involved the gastric and intestinal derangement at its commencement, and the peculiar quality of the blood.

From the history of this disease, it appears that the stomach and bowels are the first to take on disordered action. Heaviness, listlessness to motion, fatigue on the least exertion, palpitations of the heart, pains in the back, hips, loins, flatulency and acidities of the stomach and bowels, constipation, a morbid or preternatural appetite.

As it advances in its progress, the face becomes pale, and afterwards assumes a yellowish hue, even verging upon green, whence the term *green sickness*; the lips lose their color, the eyes are encircled with a livid areola, the whole body has a leuco-phlegmatic appearance, with every indication of want of power and energy in the system; the feet are affected with oedematous swelling; the breathing is much hurried by any exertion; the pulse is small, quick; cough, &c, and symptoms of hysteria.

There is a perfect distinction between anemia and chlorosis. Anemia is induced by certain agencies which impoverish the blood; chlorosis is induced by obscure causes connected with the nervous system, generally originating in disturbed uterine function. In anemia, the alteration of the blood is constant and pathognomonic; in chlorosis, it is only the phenomena, and not always present. In anemia, the intensity of the symptoms and the poverty of the blood bear a ratio to each other; not so in chlorosis. The duration of anemia is dependent on causes which produce it; chlorosis is very variable, usually commencing with important nervous symptoms.

The prognosis is usually favorable under improved treatment. The remedies best adapted to meet chlorotic symptoms are: hydrastin, cinchona, nux vomica, helonin, iron, cornin, sulphites, &c. I am very partial to the use of an emetic two or three times a week. It is advisable for the purpose of cleansing the stomach and freeing it from acidities and inactive fluids. An active condition of the bowels should be maintained, so as to keep up a regular and sufficient alvine evacuation. This is best effected by a pill composed of taraxacum, nux vomica and leptandrin; this is specially indicated if the patient is pale, yellowish or clay-colored; cheeks and eyelids swollen; tongue white; fetid breath, &c.



The employment of *nux vomica* or *ignatia*, in all cases of chlorosis, is attended with the most happy results, but especially when there is any derangement of the alimentary canal; and if the symptoms indicate a very languid circulation, tremor, disgust with almost everything, it might be appropriately alternated with *pulsatilla*. This latter remedy, in chlorosis, is invaluable; it acts essentially and positively upon the vegetative system, upon the organs of generation, and upon the blood. One of the principal points, one to which our attention should be directed, after cleansing and regulating the alimentary canal, is the improvement of the digestive organs; for we cannot amend the deteriorated condition of the blood, the deranged nervous system, until the organs of nutrition are in a proper, vigorous condition. We must have mild exercise in the open air, highly digestible and nutritious regimen, and fresh or salt-water baths. Flannel should be worn next the skin. The sea air is beneficial; bathing is a most important adjunct when properly employed, beginning with tepid baths of fresh or salt water, and gradually diminishing the temperature, until an ordinary cold bath can be used with comfort. Sensitiveness to cold water often deters the patient from the use of this excellent remedy. Good blood-elaborating diet: beef, game, fowls, rich soups, and some malt stimulant, if acceptable to the patient. Everything should be given which has a tendency to enrich the blood with red globules. There are two remedies which stand prominently forward as best calculated to aid in effecting this end, that is, *cinchona* and iron. *Cinchona* is nearly as much a specific here as iron is in anemia. It is one of the best remedies where debility of the whole organism is the essential characteristic. A simple decoction, *C. tincture*, or *cinchona et ferri*, may be used with advantage, or *cinchona* and *hydrastin*. If it seems to be complicated with any peculiar diathesis, as the case occurs, gold is specially indicated; if there be symptoms of metritis, *aconite*, *veratrum*, *aselepin*, *senecin*, are valuable. Having thus attended to the essential symptoms, as above hinted at, and employed, every few days, counter-irritation the whole length of the spine, by the irritating plaster or the *veratrin* ointment; in other cases, the application of anodyne agents, for procuring sedation of the cord and its appendages. The essential treatment, with special regard to the normal character of the red corpuscles of the blood, must consist in the administration of iron. If idiosyncrasy prove a constitutional intolerant, then the sulphites of soda or ammonia, in combination with *cinchona*. The various forms of iron should be tried, and the one that seems to give prompt action, speedy amelioration, should have the preference.

In persons of the sanguine temperament, the tannate of iron, in doses of from ten to thirty grains, I have found effectual. If the patient has suffered much from dyspepsia, gastric pain and disturbance, then the lactate of iron is used with most benefit. The muriated tincture, the wine of iron, iodide of iron. The sulphate, vallet mass, &c., may all, in certain patients, be used with success. After this, in conjunction with the outline of treatment, already suggested, has had an ample trial, certain remedies of a local emmenagogue

character should be tried. For this purpose, helonin combined with betin, macrotin with ergot, the stimulus of electricity, the insertion of the uterine sound, stimulating injections into the vagina, mustard hip-bath, and a host of other remedies, may be used for three or four days, each consecutive month. When chlorosis is attended with symptoms similar to pulmonary consumption, the phosphates, in alternation with iodide of iron, phosphorus, and everything calculated to improve the quality of the blood; if there is pain in the side, the application of the irritating plaster will be proper; and if there is much cough, it is best allayed by getting rid of the cause. Senecin is an excellent remedy in chlorosis, because it possesses the power of recalling, restoring the vital healthy action of the uterus; it imparts tone and energy to that organ. The senecin is an excellent remedy in chlorosis, on account of its alterative tonic properties being peculiarly adapted to scrofulous cases.

### LEUCORRHOEA.

Leucorrhœa, a light-colored discharge from the female genitals, varying in hue, from a whitish or colorless, to a yellowish light-green, or to a slight red-brown; in consistency, from a limpid serum to a tenacious ropy matter; and, in quantity, from a slight increase of a healthy secretion, to several ounces in the twenty-four hours. Various forms of this affection have been pointed out by writers, according to the source of the discharge; but, in nearly every form, and in most of the circumstances in which it occurs, it is symptomatic of some organic disease of the female organs, or of disorder of the general health. Most cases result from relaxation of the walls of the vagina. The conditions which predispose to attacks of leucorrhœa, may be enumerated as follows: a lymphatic temperament, scrofulous dyscrasia, debility, relaxation. The most common causes are, luxurious living, immoderate sexual indulgence, abortions, menstrual derangements, want of cleanliness, abnormal growth about the uterus, uterine and vaginal debility, long lactation. The genital organs of some females are affected by the sycotic poison in various modes, producing leucorrhœa with corrosive secretions, irregularities, &c.

Leucorrhœa may occur at any period of life, from early infancy to old age, but it is most frequently met with between fifteen and forty, and often leads to prolapsus uteri, abortion, debility, irregularity of the menses. In childhood, discharges from the vagina are not unfrequent, caused almost invariably by irritation, as worms or intestinal irritation, or from catarrhal or bronchial affections in those of a scrofulous diathesis. At forty-five the disease is rare, and then generally forms some organic affection of the uterus. During the period of uterine activity, it proceeds either from the vagina or some part of the uterus.

The earliest symptoms are, a sense of heat and soreness in the vagina, sometimes pain, smarting, a sensation of tightness, as if the vagina was swollen. then the disease shows itself by an irregular discharge, from the uterus and vagina, of a fluid, which, in different women, varies

in color, being of a white, green, yellow or brown hue. In the beginning it is, however, most usually white and pellucid, and in the progress of the complaint, acquires the various discolorations, and different degrees of acrimony, from whence proceeds a slight smarting in making water. Besides the discharge, the patient is frequently afflicted with severe and constant pains in the back and loins, loss of strength, failure of appetite, pain in the stomach, dejection of spirits, paleness of the countenance, chilliness and languor.

The sleep is disturbed by fearful dreams, and affords but little refreshment. The woman becomes pale and emaciated, her eyes are dull, and a flushing of the face is alternated by a ghastly paleness. In process of time, the feet and ankles swell, palpitations, and a difficulty of respiration are experienced, the mind is dejected, apprehensive, and occasionally affected with melancholy. Very frequently the functions of generation are greatly injured, and sterility is often the consequence thereof. Hysteria, also, in a greater or less degree, is generally a concomitant of leucorrhœa; the urine is turbid, and the menstrual discharge is sometimes scanty and suppressed; at others, it is too copious, irregular, or attended with much pain.

There are several forms of the disease, the treatment of which is identical.

*Treatment.*—Before commencing treatment, there are several conditions that must be scrupulously observed to insure success; plenty of exercise in the open air; avoidance of all excesses; a well-regulated mind; the injection of the vagina or uterus, twice daily, with water, or water medicated with some agent, to meet the peculiarity of the type of the disease; unless the patient can enforce perfect cleanliness of the affected parts, all efforts at cure are hopeless. The morbid secretion, let it be alkaline or acid, let it be from the uterus or vagina, is irritating, and, if allowed to accumulate, or come into contact with the other parts, becomes highly pernicious to the well-being of the parts; on this account vaginal or uterine injections are of unsurpassed utility.

*Helonin* is a valuable remedy in the scrofulous and cachectic, where there is irregularity of the menses, and where the discharge is thin, transparent, starchy, mucilaginous, &c. This can be used with a confidence which we have not in any other remedy; from two to five grains triturated in sugar or syrup.

*Iodine* in some form, if the discharge is thin, yellow, irritating; if the patient is strumous, or indications of tubercular deposit in any part, iodide potassium in the C. syr. stillingia is a most acceptable form.

*Hydrastin*, in alternation with *pulsatilla*, is remarkably well adapted for leucorrhœa in pregnancy, or when it occurs before the menstrual flow.

*Erigeron*, in alternation with phosphorus, is well adapted for those cases where the discharge is profuse and acrid, attended with a burning or itching sensation in the genitals.

*Ergot* is highly recommended in these cases, devoid of all inflam-



mation, and where there is great relaxation of the vagina. But, if there are indications of febrile symptoms, heat, fullness, plethora, sanguine temperament, aconite and asclepin are magical in their effects.

*Myricin*, in alternation with gold thread, may be successfully used, if there is a state of atony existing in the system. It may be advantageously combined with *cimicifugin*.

*Gold*, *rumin*, *irisin*, *ampelopsin*, if we have reason to suspect any lingering or taint of syphilitic origin.

*Lycopodium*, *phosphorus*, *hydrastin*, *cinchona*, &c., are our best remedies if the affection has supervened from masturbation.

*Cinchona* is one of the best remedies we have in leucorrhœa. It is of more real value than all other remedies—the *C. tincture cinchona*.

*Iron*; also the iodide of iron or some form of it, that acts well with the patient. If remedies do not seem to act with the desired effect, give an emetic about three times a week; this is of a singular utility, it not only cleanses the stomach and bowels, but it is revulsive, rousing up the energies of the stomach to a more vigorous and healthy action.

To correct the acrimony of the discharge, lessen the quantity; we have said a most diligent attention should be paid to cleanliness by means of injections, various descriptions of injections, as a strong infusion of tea, a solution of alum, or sulphate of zinc, a drachm to a pint of water, a decoction of oak bark, or hydrastis, or witch-hazel, or bayberry, lobelia, and white pond lily. *Rx*.—Phenol sodique,  $\mathfrak{z}$ ss; chlorate potassa,  $\mathfrak{z}$ ii; aqua,  $\mathfrak{z}$ viii.—*M*. Use as an injection morning and night.

Iodide of potassium is highly recommended as an injection. If there is any fetor, or excoriations, and, where an astringent might be useful, a lotion of bichromate of potash, five grains to the ounce, and increased, is very serviceable. In chronic leucorrhœa, where the lips of the os uteri were swollen and spongy, it will cure when all other remedies fail. My favorite prescription in leucorrhœa is as follows: *Rx*.—Permanganate of potash,  $\mathfrak{z}$ iii; aqua dist,  $\mathfrak{z}$ iv.—*M*. A tea-spoonful in half a pint of water as an injection daily.

The pains in the back and loins are sometimes relieved by the application of the *emplastrum ferri*. To strengthen and tone up the general system is the point; the disease is usually complicated with universal debility; restorative means must be adopted; we must resort to the wine bitters, wine and cinchona bark, nitro-muriatic acid and hydrastin, the preparations of iron, cold bathing, topical and general, and other tonics. All the remote causes of the disease must be avoided, the patient should sleep on a mattress, should avoid any indulgence in sexual gratification. If there is much languor, with chilliness, friction and the use of flannel next to the skin should be adopted.



## METRITIS.

Acute inflammation of the substance of the unimpregnated uterus. Sometimes the muscular tissue of the body may alone be affected, or that of the cervix, or the whole organ may be involved.

*Causes.*—Exposure to cold is the most frequent cause; blows upon the abdomen; excessive sexual indulgence. It is not a common disease.

*Symptoms.*—Acute metritis may set in suddenly with rigors, followed by fevers, delirium, convulsions and overwhelming nervous prostration, but more commonly it comes on in a mild and insidious manner. There is a sense of weight and heat about the pelvis. Throbbing, with tenderness about the pubes, groin, and perineum; irritability of the bladder; nausea; vomiting; diarrhœa; tenesmus. After the first forty-eight hours, acute, severe paroxysms of uterine pain, radiating up the abdomen, down the thighs, and around the body. The pain is usually of a dull, aching character, sometimes sharp; dysuria; difficult and painful defecation. A mucous, and sometimes a sanguineous discharge; suffering relieved when the patient assumes the recumbent position; acute symptoms subside in a week; resolution often occurs, but, occasionally, one or more abscesses form in the uterine substance, or sub-acute inflammation follows; sometimes the pelvic areolar tissue gets involved.

The constitutional symptoms are, severe chills, rigors, headache, flushed face and furred tongue. It is very apt to leave hypertrophy, induration, ulcerations or leucorrhœa.

*Treatment.*—Acute endometritis is a rare affection, and, when it does supervene, the best treatment consists of complete repose, perfect rest in the recumbent position, simple diet, cooling drinks. Then put the patient thoroughly under the influence of gelsemin and asclepin; then resort to hip-baths, and injections of warm water, medicated with stramonium or belladonna; sinapisms of mustard to the extremities. If there is great gastric disturbance, beef essence, milk and lime-water, otherwise the remedies best calculated to relieve urgent indications are, *aconite*, *belladonna*, *nux vomica*, *macrotin*, *senecin*.

If the gelsemin and asclepin does not act promptly, and if the case is persistent, *aconite* and *belladonna*.

*Macrotin* and *senecin* exert a special controlling influence over the uterine functions, and, in metritis, they are two of the best remedies we possess.

If it assumes the sub-acute form, C. syr. *stillingia* and iodide potass, *irisin* and *trillin*; injections of borax, in solution, or a few grains of iodide potass to three or four ounces of water; warm hip-baths, moderate exercise, and a generous diet.

CHRONIC INFLAMMATION OF THE NECK OF THE UTERUS.—This is a very common affection, and one not generally recognized, being frequently overlooked, misunderstood or neglected. The secondary, or sympathetic diseases, distress patients most, and the fact that they mention no other troubles, is very apt to mislead the inexperienced.

*The sympathy* of the stomach is very prominent in any derangement

of the uterus; strong, intense sympathy, manifested by nausea; want of appetite, gastralgia, indigestion, &c.

The *bowels*, also, powerfully sympathize with all diseases of the uterus, very prone to diarrhoea, or constipation, or a gaseous condition.

The liver, also, being intimately associated with the uterus, is liable to have its proper function perverted, either an increase or deficiency of bile, or a spasmodic action in the gall duct.

But the nervous system suffers most from reflex action; aches, pains, and every description of complaint are the peculiarity of uterine disease. The many terrible, excruciating, neuralgic, morbid sensations, incapacitates these patients from enjoyment, and their complaints and sufferings are too often treated with unreasonable impatience and rudeness.

Headache, in some form, either partial or general, is a very common attendant on the nervous susceptibility of such patients.

The affection of the spine is a very common one in uterine inflammation. Sympathetic pains in the pelvic region; irritation of the bladder or rectum; disturbance and paroxysmal pain in the sciatic and crural nerves; we may also have hyperæsthesia, anæsthesia, spasms, perversion of the intellectual faculties; syncopal convulsions, muscular weakness, disordered circulation, painful respiration, irritable excretory organs, and a very common condition is, a highly excited or congested condition of the mammary glands. Congestion is the most common condition; the mamæ increase in size, become hot, painful, very sensitive. Sometimes the breast is quite hard and congested. The mental and moral derangements are very striking, despondent, fretful, suspicious.

*The local symptoms* are, pain in the sacral or lumbar region, pain in the loins, inability to stand or walk; pain and soreness in the iliac region, side; weight, or bearing-down pain—uterine tenesmus; leucorrhœa, and, if there is ulceration, the discharge of a yellow color, amenorrhœa or menorrhagia; sterility, abortion, &c.

*Causes.*—Sexual indulgence, improper reading, cold, constipation, standing, the use of abdominal supporters, exertion, jolts, pregnancy, abortions, labor, decomposition of the productions of labor, vaginitis, gonorrhœa.

*Prognosis.*—This is favorable if not complicated with any other disease; but, if complicated with disease of the lungs, throat or skin, not so favorable.

*Complications.*—Vaginitis, urethral inflammation, cellulitis, rectitis, stricture and fistula of the rectum, prolapse and hypertrophy of the rectum, displacement of the uterus, prolapsus, ante and retroversion.

As regards the position of the inflammation, it may attack the neck, the body, and the entire uterus.

*Diagnosis.*—Fortunately for suffering woman, we have now arrived at a demonstrative knowledge of the nature, extent and locality of diseases of the uterus, and digital examination can very well decide the condition of the part involved, if the physician has had much experience. The chief landmarks are: the neck of a healthy uterus

is soft, within easy reach of the finger; *whereas*, in an inflamed uterus, it is hard, sensitive. The os uteri in the aged is high up in the pelvis, and feels like a piece of cartilage. A healthy uterus is never tender to the touch. If the uterus is healthy, the fundus cannot be felt above the symphysis. In inserting a catheter into a healthy urethra, there is a peculiar smarting pain; but if the urethra is inflamed, the feeling of soreness exists. We can also gain some information by the use of



Fig. 89.

the uterine sound. (*Fig. 89.*) By this instrument we can measure the size and the length of the cervical and uterine cavities, and, if need be, the connection of that organ with pelvic growths; and, by the speculum, we have ocular demonstration of the condition of the parts.

In the virgin os uteri, the cervical end is nearly round, and terminates in a truncated extremity, in the centre of which the os uteri can be seen, just large enough to admit with facility the end of a female catheter.

The multiparous uterus presents a different appearance. The cervix terminates in labial projections, which divide its extremities into an anterior and posterior half, and does not project with much prominence into the speculum.

The color of the mucous membrane covering the cervix and entering the os uterus, resembles the inside of the lips of the mouth—a pale rose-red color.

The indication of mucus in abundance is an evidence of excitement; its constant and persistent abundance is an evidence of disease.

The function of a mucous membrane is to secrete mucus. The more perfect their condition, the less do they secrete; the greater the diminution of their life, the greater the secretion. The more disease, the greater the secretion, until their integrity is destroyed, when the secretion becomes modified. The source of this mucus points out the disease; if it comes from the os uteri, the disease is in the cavity of the cervix or body of the uterus.

Pus, or purulent mucus, indicates disease. Pus cannot be produced by a mucous membrane, without destruction of its epithelium. Temporary congestion often increases the amount of mucus, but never pus.

A very characteristic sign of inflammation is, increase of size, tenderness, increased secretion; and of ulceration, still more intense redness, purulent discharge, tenderness, enlargement. The former condition can be ascertained by the touch; the latter, by the sight.

*Treatment.*—One of the chief points in treatment is, to live in a healthy and proper manner, study hygiene, exercise in the open air, and, if the disease does not improve, insist upon repose, in the recum-

bent position. The diet should be good; sexual intercourse should be prohibited; and then, while we are making efforts to control the general inflammatory condition and cure the disease, the relief of general and special symptoms require attention.

NERVOUS PROSTRATION is often extreme, and this should be obviated by a use of nerve tonics, especially cypripedin, phosphorus and nux vomica; by an avoidance of heated rooms; by agreeable associations; by cheerful society.

NERVOUS EXCITABILITY generally shows itself in the want of sleep, mental excitability, irritability, exaltation of the nervous system. The best mode of relieving this is, by regulating all the secretions, more especially the chylopoietic functions, skin and kidneys. Make a change in the mode of life of the patient, such a change as will remove her from delicacy to robustness. It is the extreme delicacy of constitution that causes her to suffer so much. Daily shampooing, friction to the entire surface, spine, with such tonics as iron, phosphorus, nux vomica, hydrastin, cinchona, will probably control it.

ANÆMIA is often a complication, and calls for special treatment; and is usually benefited by the remedies indicated by the state of the blood. Iron, quinine, nutritious diet, beef essence, &c.

PLETHORA AND LOCAL CONGESTIONS are best relieved by attention to the secretions, an active life, every muscle put into useful occupation, and acetate of potash should be occasionally given.

CONSTIPATION should be promptly overcome. New habits should be formed; regularity in the act of defecation is indispensable for a correction of the bad habit of constipation. Let the mind create a desire, and dwell upon the necessity for an evacuation, at least half an hour before retiring to the proper place. Let no consideration of convenience enter into this punctual effort at stool. Arrived at the proper place, the position should be an easy one; no inconvenient strain upon a muscle; and the patient should be possessed of a sense of leisure to perform the act completely.

For the purpose of overcoming the constipation, ripe fruit may be resorted to with advantage. In recommending fruit for constipation, there are three indications fulfilled: *distension*, increased secretion, augmented peristaltic action. Everything should be tried before resorting to medicine; habitual effort, exercise, diet, drink. The best remedies are, taraxacum, leptandrin, juglandin, nux vomica, rhusin; and these remedies might be aided by the daily injection of half a pint of cold water.

The case must be otherwise treated on general principles.

The local treatment must consist in the use of baths, injections of water, which has a sedative effect; soothing the parts to which it is applied. Injections are but internal baths; these may be medicated by medicinal agents.

THE HIP-BATH is excellent where the patient suffers from pain and heat in uterine disease; the temperature should be agreeable.

THE SHOWER-BATH is excellent, so is the alkaline sponging, it soothes nervous irritation.

INJECTIONS are applicable to all cases of inflammation of the uterus,



do good, and often cure cases; they may be medicated to meet special indications, as by infusions of the white pond-lily, witch-hazel, hydrastis. By the use of such injections three or four times a day the vessels are constricted, they circulate less blood—their calibre and functional activity are diminished, and in this way the inflammation may subside.

The injections are best repeated frequently, and they should be alternated—the temperature that is disagreeable should be avoided.

If the case does not yield, brush over the neck, and all the inflamed parts within reach, with the sesqui-carbonate of potash, and if this fails, nitrate of silver, forty grains to the ounce, should be tried.

An alterative tonic course should be rigidly enforced and persevered with.

**UTERINE ULCERATION.**—This is a frequent result of inflammation and congestion; various forms of ulceration are found about the cervix; *simple abrasion; ulceration of labia uteri; rodent ulcer.*

**SIMPLE ABRASION**, excoriation, or erosion of labia uteri; epithelium removed from a part of one or both lips; exposed villi, with their looped capillaries, conveying a velvety feel to the touch. Extent of abrasion very easily ascertained by the speculum.

*Symptoms.*—Leucorrhœal discharge; pelvic and sacral pains; ovarian irritation; indigestion; flatulence; irregular action of the bowels; irregular menstruation; general weakness and depression.

*Treatment*—Locally, injections of the chlorate or permanganate of potash; or infusion of witch-hazel or raspberry leaves; tepid or warm salt-water hip-baths; suppositories of the iodide of lead, or iodide potassium; the application of the sesqui-carbonate of potassa.

**ULCERATION OF LABIA UTERI.**—Uterine lips more deprived of dense epithelium, but the villi, with thin vascular loops, destroyed in patches. Sometimes the proper tissue of the uterus is involved.

*Symptoms.*—Thick muco-purulent discharge; pelvic pains; back-ache; menorrhagia; anemia; headache; neuralgic pains; sallow skin; irregular bowels; depraved appetite; debility; mental depression. Pains increased on walking or sitting; reflex irritation of the breasts, bladder and rectum.

The same treatment as for simple abrasion, tepid injections of milk and water, alternated with ones composed of sulphate of zinc. A liberal use of tonics, alteratives, C. syr. stillingia and iodide potass, gold, &c., and the reflex action must be allayed with pessaries, composed of extract of belladonna, iodide of lead; and sexual intercourse must be rigidly and faithfully avoided.

**RODENT ULCER**, or corroding ulcer, is the most aggravated form of ulceration that attacks the uterus; it is frequently confounded with epithelial cancer; very rare before forty, but frequent about the change of life.

*Symptoms.*—The ulceration begins gradually, extends slowly, and eats away tissue, and, if not arrested, makes terrible destruction. The patient complains of pelvic heat, and great uneasiness; thin serous discharge, often streaked with blood. There is debility, pallor, indi-

gestion, and to these quickly succeed burning pains, attacks of hemorrhage.

On examination, an irregularly-shaped ulcer is seen with ragged or indurated edges; the sore excavated. Sometimes a good portion of it is destroyed; it is fatal in its tendency, and requires the use of active means.

The only treatment is, destruction of the ulcerated part by caustic-soda, or potash, then the use of soothing injections; these might be followed with the use of pessaries of stramonium, and the constitutional treatment of scrofula and cancer should be strictly adhered to. Then injections of the solutions of permanganate of potash, alternated with one composed of glycerine, Pond's extract of hamamelis, and water, equal parts. These injections should be used every three hours, and tonics, alteratives, sedatives, and the most nourishing diet.

**UTERINE DISPLACEMENT.**—Displacements of the uterus are most common as an effect or complication of inflammation, or from general debility; and no other plan but one based upon this fact, will be likely to be successful in treatment. The erroneous idea that displacements are primary affections, should be got rid of, and our treatment modified or adapted to one of debility, the result of inflammation.

The grand failure of mechanical support for the relief of displacements, is based upon the want of a correct knowledge of the affection.

**PROLAPSE AND PROCIDENTIA.**—These terms are employed to designate a descent of the womb, as it exists in two different grades. By prolapsus is meant that condition in which the uterus falls below its natural level in the pelvic cavity. By procidentia is signified the protrusion of the uterus beyond the vulva. Causes of both conditions the same. Suffering varies in degree.

The nature of displacement involves the conditions of the annexed organs. The vagina can do but little to resist causes operating to produce retroversion or anteversion.

*Symptoms of prolapse.*—Sense of fullness or pelvic weight; bearing-down pains; pain in the back; leucorrhœa; no impediment to menstruation or conception; uterus is easily replaced when the patient is in the recumbent position; irritation of the bladder and rectum. In prolapsus the uterus is found depressed, perhaps resting on the upper floor of perineum. In procidentia, a round or pear-shaped tumor, with os visible in its centre, seen projecting beyond the vulva. The labia of the uterus excoriated. Vaginal walls may be dry and harsh, and cracked; perhaps ulcerated.

*Treatment.*—Artificial support to be afforded by means of a fine sponge, medicated with a solution of permanganate of potash. Tone must be given to the relaxed vaginal walls, to the perineum, abdomen. Removal of complications—uterine congestion, hypertrophy, cough, constipation.

To effect support in procidentia, place the patient on the left side, with knees well flexed; the uterus well oiled, to be gently pushed upwards.

Place the patient on her hands and knees, with head lower than the pelvis, so as to remove the superincumbent weight of the intestines; then replace the womb. If that fails, then encircle the protruding uterus with adhesive strips of plaster for forty-eight hours, keeping the patient strictly confined to bed; the circumference of the tumor having thus been reduced, reposition is usually easily effected after the removal of the plaster. This failing, persevere with means, as relaxants, discutients, &c., to relieve congestion. To give support to the abdominal viscera, an abdominal belt of stout jean has been used, but I cannot recommend it. To support the uterus, an oval or globular piece of fine sponge. For effecting a radical cure, vertical streaks of nitric acid up the vagina, thereby diminishing its calibre, and relieving the dragging or bearing-down pains; or the patient should be kept in the recumbent position, using every evening injections of half a teaspoonful of chloride of sodium in half a pint of warm water; and, during the day, infusion of nut-galls, or other efficient astringents.

Internally, *hamamelis*, *phosphorus*, *cinchona*, *iron*, *senecin*, *hydrastin*, cold salt-water baths, nourishing diet.

**RETROFLEXION AND ANTEFLEXION.**—Retroflexion consists of a bending backwards of the uterus, at a part where the neck joins the body, so that the fundus is found between the cervix and rectum, the os uteri being in its normal position. The uterus becomes shaped like a retort. In antelexion, it rests on the bladder.

*Symptoms.*—The pelvic cavity is very capacious. Considerable suffering where the angle of flexion is great; uterine ligaments unduly stretched, circulation through the uterus impeded, and fundus immovably pressed upon the rectum or bladder.

Pain in the back, tenderness about the groin, inside of the thighs; sense of fullness in the rectum or bladder, pain from sexual intercourse, fecundation prevented, dysmenorrhœa, nausea, loss of appetite, mental depression, hysteria; displacement easily recognized with certainty by the uterine sound.

*Treatment.*—Replacement, by pushing fundus upwards, with the assistance of the uterine sound; the use of belladonna and iodide of lead. If these fail, dilate the neck of the uterus, then the uterine cavity; keep it up in normal position by means of a metallic stem.

**RETROVERSION AND ANTEVERSION.**—In *retroversion*, the uterus lies almost transversely in the uterine cavity, with fundus towards the hollow of the sacrum, and os uteri under the pubic arch. *Anteversion* is characterized by fundus lying towards the bladder, and os uteri in the cavity of the sacrum.

*Causes.*—Anything that increases the weight of the uterus predisposes it to deviations and displacements. If there is increased weight, and the patient long in the erect posture, the uterus will settle down into displacement, more especially if the patient strain, or is jolted. Inflammation of any part of the uterus gives rise to increased weight and size, and thus predisposes to displacement.

*Symptoms.*—Pain in the back, bearing down, leucorrhœa, menstruation not interfered with, impregnation not prevented. In retroversion, pressure of the labia uteri on the urethra,—a common occurrence



in pregnancy. Pain, numbness, debility; formication, or change of temperature in the lower extremities, on account of some pressure on some large nerve or vessel; constipation, hemorrhoids, a sense of heat in the rectum.

*Treatment.*—Replacement by means of the sound; and, if necessary, retaining the sound for some time, for the purpose of keeping it in position; injections of hamamelis and permanganate of potash in solution, the exhibition of tonics, mineral acids, cinchona, phosphorus, hydrastis, &c., the avoidance of over-exertion, straining at stool. In displacement during pregnancy, replacement is best effected with the patient resting on her hands and knees.

In anteversion, the rectum is pressed upon by the cervix uteri, and distress arises as a consequence. The means for rectifying this position must lift the fundus upward, and push it backward, or draw the cervix forward, and lift it slightly upward.

It must ever be borne in mind, that the only radical way of overcoming the difficulty is, by getting rid of the cause, and using proper constitutional means. For the nervous and constitutional symptoms, *aconite*, *belladonna*, *cypripedin*, *cinchona*, *hyosciamus*, *nux vomica*, *phosphorus*. Local applications of cold water, hip-baths; all artificial contrivances, in the shape of supporters, pessaries, and the like, should be strictly avoided. Such applications never do good; but, in the end, aggravate the complaint, and diminish the chance of cure.

**INVERSION OF THE UTERUS.**—In this condition, the uterus is literally turned inside out. The fundus descends through the os uteri, the mucous lining of the cavity of the womb becoming the external covering of the tumor, which projects into the vagina, and generally through the vulva. It usually happens directly after labor, or the expulsion of a polypus.

*Symptoms.*—Extreme nervous shock, great depression and faintness, bearing-down pain, nausea and vomiting. It may be hemorrhage; sometimes death from the shock; at other times, the accident may not be detected for some time.

*Treatment.*—If it occurs directly after labor, and the placenta is adherent, it should be peeled off; then the uterus should be firmly grasped, and steady pressure made in an upward direction, so as to reduce that portion first which has last descended. The patient should be under the influence of an anæsthetic, if possible.

In chronic cases, attempts at reduction should be made, and gently persevered with for an hour, or even longer, every other day, applying a poultice of equal parts of pulverized lobelia and slippery elm in the meantime. All plans failing, the uterus has been removed by the *ecraseur*.

**CANCER OF THE UTERUS.**—This is most frequently of the medullary form. Scirrhus not so common. Most commonly met with about forty.

*Symptoms.*—The symptoms do not essentially differ from cancer in general. Cancerous diathesis, dingy, sallow countenance, abundant watery discharge, of a dirty, pale-green color, always offensive; sudden attacks of hemorrhage, distressing pain, at first only present at



night, afterwards always present; nausea, vomiting, irregular action of the bowels.

Uterus immovably fixed in the pelvic cavity; labia uteri indurated and nodulated at first, subsequently excavated by an ulcer of a loose, spongy character, seated on a hardened base, and surrounded by indurated tissues. Vagina soon gets involved.

*Treatment.*—To keep the parts clean, to destroy odor and remove offensive discharge, a solution of permanganate of potash; to restrain the hemorrhage, perchloride of iron in solution, erigeron; for the relief of pain internally, henbane, opium, lupulin, Indian hemp, subcutaneous injections of morphia; locally, hemlock poultices to the pubes, chloroform directed on the seat of cancer by the spray. For modifying or altering the diathesis, thorough cancer treatment, more especially the daily use of nitro-muriatic acid, iodine or sulphur-baths, and the internal use of C. syr. *stillingia*, *dock*, *phosphorus*, *gold*, *platinum*, *sulphites*, *cinchona*, *conium*; and the most nutritious diet—milk, cream, raw eggs, animal food, &c.

UTERINE TUMOR.—Of all diseases that prevail, appertaining to the uterus during the period of sexual vigor, non-malignant tumors are the most common.

FIBROID TUMORS consist of out-growths of uterine tissue. Sometimes they attain an enormous size, and may be developed in any part of the uterus. These tumors are variously classified: as *subperitoneal* or surface tumors, when just beneath the peritoneum; as *interstitial* or intra-mural tumors, when imbedded in the uterine walls; as *submucous* or intra-uterine tumors, when pressed into the cavity of the wound.

Change of structure is very liable to take place in these growths, and this gives evidence of their degeneracy. Calcareous deposits often take place in each of the above varieties, and the uterus very soon loses its vigor with these attached to it.

The shape and size of these tumors vary considerably.

*Symptoms.*—Very frequently the premonitory symptoms are neither important nor well-marked. When of sufficient size to encroach on the pelvic viscera, or to be detected through the abdominal wall, the symptoms are more prominent. Menstrual irregularities, as menorrhagia; dull, aching, throbbing pains; a feeling of weight and bearing down; cramps or numbness in one or both limbs; difficulty in voiding or retaining urine; constipation; hemorrhoids; enlargement and tenderness of the breasts; attacks of severe hemorrhage in intra-uterine growths; occasional expulsive pains. Tumor can be detected on careful abdominal manipulation and vaginal examination.

*Treatment.*—In a large number of cases, the less fibroid tumors are interfered with the better. Great danger from attempting radical cure, either by ligation or enucleation, gouging growth and scooping away portions, or by abdominal section. Then meet the different indications as follows:

*To produce absorption*, iodine, iodide potass, gold, platinum, bromide of ammonium, chloride of calcium, irisin, rumin, may be used with success.

To control hemorrhage, erigeron, alum, gallic acid, perchloride of iron, turpentine.

Topically, pessaries composed of the iodide of lead, potassium and belladonna; otherwise, treat upon general principles.

CYSTS, or closed sacs, filled with mucus or serum, are occasionally met with, developed in the substance of the uterus, or just beneath the internal mucous lining, or under the external serous covering. Cases now and again present themselves, where one part of the uterus may be invaded by cystic growths, while another part is the seat of fibroid tumor. These cysts only give rise to inconvenience when they attain a large size.

If within reach, they may be punctured; if pedunculated, and pressing into the uterine cavity, they can be twisted off, after dilating the os uteri.

POLYPUS OF THE UTERUS.—Polypus of the womb is met with usually under three varieties: *fibroid*, *mucous*, or *gelatinous*, and *placental*. The most common form is the gelatinous—all pear-shaped, attached to the inner surface of the uterus by a pedicle or neck. It is often found occupying the uterine cavity, sometimes the vagina, and at other times attached to the uterus by a pedicle.

*Symptoms.*—Profuse menstruation, irregular attacks of uterine hemorrhage, often amounting to flooding; profuse leucorrhœal discharge; irritation of pelvic viscera, from pressure; spasmodic attacks of pain; debility and loss of flesh, in proportion to the amount of discharges. Tumor is usually detected after dilating the neck of the uterus. The neck of the uterus is easily dilated with gum elastic air-bags.

*Treatment.*—If it is in the uterus, os uteri to be fully dilated and the tumor ligated, or removed by division of pedicle with wire-rope ecraseur. Where it is accessible and can be done, torsion is an excellent method of removal; if it is in the vagina, torsion and ligation are the best methods.

## OVARIAN DISEASE.

Inflammation of the ovary is met with under two forms, the *acute* and *chronic*.

ACUTE OVARITIS.—This is apt to arise from violence, use of strong caustics to the neck of the uterus, violent dilation of the os with spongy tents or gum-elastic air-bags, sudden suppression of the menses, from shock, gonorrhœa, &c. The left ovary more frequently attacked than the right.

*Symptoms.*—Pain variable in intensity; sometimes severe, causing the most excruciating pains, like labor pains; but more frequently they are of a dull, aching character, with occasional sharp lancinating attacks. Tenderness about the lower part of the abdomen, groin and inner part of the gland. If the morbid action continues, peritoneum gets involved; bladder becomes irritable; urine scanty, high-colored, and scalding; tenesmus; passage of hardened feces causes much suffering by pressure on the ovary. A good deal of fever; rapid

pulse; nausea; restlessness; disgust for food. On examination, the swollen and highly sensitive ovary can be easily detected. If suppuration occurs, rigors, quick and feeble pulse; glazed red tongue; excessive sickness; a sense of weight and throbbing about the pelvis. Abscess may burst into the peritoneum, setting up severe peritonitis; more frequently they burst into the rectum or vagina. Such cases are tedious, opening closes, but pus accumulates again and again.

*Treatment.*—If there is febrile symptoms, either veratrum and gelsemin; or aconite and guaiacum; hot hip-baths morning and night; active revulsives over the region of the ovary and maintain them; pessaries of opium, belladonna, lobelia; warm stramonium fomentations over the pelvic region continuously applied, or poultices of stramonium and lobelia to vulva, hypogastric, and inguinal regions. Keep the rectum well emptied by injections of soap and water; act freely on the skin and kidneys, on the former by the diaphoretic powder, and on the latter by some saline diuretic, as citrate, bi-tartrate, nitrate of potassa, and, to increase their efficacy, add eupurpurin. Establish convalescence upon cinchona, hydrastis, gold thread, elixir cinchona et ferri et phosphate and injections of hydrastis, hamamelis, white pond-lily, and permanganate of potash.

**CHRONIC INFLAMMATION OF THE OVARY.**—This is a common disease during sexual vigor. It is very slow and tardy in its course, very intractable.

*Causes.*—It is liable to be a sequel of the acute; it is often the result of excessive sexual intercourse; the unskillful or illegitimate use of the uterine sound; or apt to follow the use of caustics to the uterus; frequently follows or is complicated by the metastasis of psora, rheumatism, or syphilis.

*Symptoms.*—The most prominent symptoms are, a dull, aching pain in ovarian and sacral regions. Tenderness of the upper part of both thighs, scanty and difficult menstruation. Pain on sexual intercourse; irritability of the stomach, nausea, vomiting, indigestion, constipation, flatulence. Fits of hysteria, irritability of the bladder, tumefaction and tenderness of both breasts, attacks of aberration. Nymphomania is not uncommon. Inflamed gland found swollen and sensitive to the touch, or in making a vaginal examination.

*Treatment.*—In this form we must rigidly prohibit sexual intercourse, depleting means, as purgatives, and we must positively inculcate the most thorough hygiene, together with the use of warm hip-baths; warm clothing, as flannel next to the skin, animal food, albumen, gentle walking exercise. The medicinal treatment must be alterative and tonic, as C. syr. stillingia, with the bromide or iodide of potass, alternated with cinchona; bromide of ammonium, alternated with iodide of iron, and so on with other alteratives and tonics. The best medicated pessaries are those made of stramonium, belladonna, and iodide of lead.

**OVARIAN TUMOR.**—Ovarian dropsy, cystic disease of the ovary; a conversion of the ovary, or a part of it into cysts. There are three varieties commonly met with: *simple*, or unilocular; *compound*, multilocular, or proliferous; and *dermoid cysts*, the lining membrane of



which produces, or has the capability of producing hair, teeth, sebaceous matter.

*Symptoms.*—In the early stage scarcely a palpable symptom can be detected, and, indeed, it often escapes detection, until the abdomen begins to enlarge. In some exceptional cases, in the early stage of the tumor, it may cause irritation of rectum and bladder; a sense of weight and oppression; pain and numbness down the thigh of the affected side; pain in the back, menstruation usually regular, perhaps abundant.

In the more advanced stage, great pain and tenderness; distention of abdomen; disordered menstruation, perhaps suppression; loss of flesh; constipation; indigestion; frequent micturition; diminution of strength; abdomen enlarged; fluctuation varying in distinctness, according to the number of cysts, their distention and capacity; dullness on percussion. The tumor may cause ascites; œdema of thighs and legs.

After an indefinite time the suffering is greatly augmented, and the patient's movements impeded by the bulk of the tumor. Distress becomes extreme; nights miserable, attacks of dyspnœa frequent, and, latterly, continuous. Considerable œdema, often suppression of urine; sometimes uræmic intoxication, or poisoning, and lastly, fatal prostration.

*Treatment.*—Thorough secretion and excretion; abdominal *tapping*, followed by steady, well-adapted pressure, and the administration of the iodide potass; *tapping*, with the introduction of a drainage tube, so as continually to draw off the fluid as it is secreted; *tapping*, followed by the prolonged use of the chlorate of potass, in large doses, is often successful; *tapping*, with injection of iodine; *tapping*, with application of the ligature around the pedicle; *tapping* through the vagina; and, if all fail, abdominal section and ovariectomy. [See *ovarian dropsy*.]

## THE MAMMARY GLANDS.

These glands are part of the reproductive system. Their office is to supply the offspring with food in a fluid form, until its teeth are sufficiently developed to enable it to masticate solid food. They exist, in a rudimentary state, in the male; and, when excited by peculiar circumstances, have been known to secrete milk. They have sometimes become enlarged after the loss or atrophy of the testicles. They are situated in the pectoral region, corresponding to the interval, between the sixth and seventh ribs, and extending from the sternum to the axilla. They are of small size before puberty, but enlarge as the generative organs become more developed. They increase in size during pregnancy, enlarge rapidly soon after delivery, and become atrophied in old age.

In the centre of each mamma, its outer surface presents a small, conical prominence; the mamilla, or nipple, which is surrounded by an areola, having a colored tint. Before impregnation, the color is of a crimson or delicate pink; after impregnation, it deepens, and assumes



a brownish hue, which, after the birth of the child, continues through life.

**MASTODYNIA.**—*Neuralgia of mamma.*—The breast is not unfrequently the seat of most distressing pain, without any structural disease of the gland. This may be due to the abundant ramifications of nerves in this organ. Strong sympathetic reflex action from the uterus to the breasts.

*Symptoms.*—Neuralgia of the breast usually begins with a slight heat, sharp pain, and more or less swelling in the affected breast. Sometimes the lobules feel rather firmer than is natural. More commonly, the gland is healthy to the touch. The pain may be of a wearying, aching character; it may be acute, liable to exacerbations of a periodic character. They resemble neuralgia, and are almost always identified with ovarian or uterine irritation. An irritable and painful condition of the breast is not uncommon, in sanguine and nervous patients, at the commencement of each menstrual period. There is almost always loss of appetite, constipation, restlessness, great anxiety, &c.

*Treatment.*—In the treatment, remove, if possible, the cause, as it is usually impossible to cure the pain while the original disorder lasts. Removal of any ovarian or uterine irritation, and the greatest possible attention to hygiene, diet, exercise, clothing.

The special remedies should consist chiefly of those noticed under the head of neuralgia. *Belladonna* has a special controlling influence, given in one-eighth to one-fourth-grain doses; quinine, hydrastin,  $\text{aa}$  grs. xxx; ext. nux vomica, grs. v.—*M.* Make twenty pills; one every three hours. A very good remedy, in a large proportion of cases, is the macrotin, senecin and trillin, *aconite*, *scutellarin*, *stramonium*, *iron*, *cod-liver*, *pepsin*, hydrastin, *rhus radicans*, &c., are specially indicated. Vaginal pessaries of belladonna, or friction to the breast with belladonna; and, if the breasts are pendulous, strapping is of great utility. The removal of the breast, for the relief of the pain, is never justifiable.

Boys and girls, at the age of puberty, are liable to neuralgic affections of the breasts, and also to enlargement and tenderness; frequently, secretion of milk. The disorder will subside spontaneously, if no irritating remedies are applied. If irritating remedies are applied, an abscess may be the result. The best local remedies are, belladonna, stramonium, and muriate of ammonia in solution.

**MAMMITIS.**—Inflammation of the breast may be acute or chronic. Generally occurs during lactation, from cold, irritation of sore nipple, external injury; to poor diet, inattention to nursing at proper intervals, general debility, or sympathy with gastric, intestinal, hepatic, uterine, ovarian or renal irritation.

*Symptoms.*—When *acute*, considerable pain, swelling, induration, shivering, fever, quick pulse, coated tongue, delirium, secretion of milk arrested or checked. Suppuration generally results.

In the chronic form, which usually comes on slowly and insidiously, enlargement of the gland and induration; the hardness much less than in scirrhus. Often terminates in suppuration. It may follow the

acute form, and is very prone to do so, if it prevails in a patient of strumous habit. This form prevails independent of lactation.

*Treatment.*—If it is an acute case, and seen early, an emetic of C. powder of lobelia, followed with the alcoholic vapor-bath, keeping a poultice of belladonna over the gland; then a thorough cathartic podophyllin and colocynthin; give aconite and belladonna internally; persevere, and, if unable to arrest or modify the inflammation, begin an alterative course. Iodide potass, irisin, stillingia, &c., should be persevered with. The belladonna, as a local application, is unexcelled; the iodide of potass might be added to it to give it efficacy.

Compression to the breast should be early resorted to, and persevered with. If milk accumulates, and causes painful distention, it should be drawn off by the breast-pump; and the very moment fluctuation is detected, free incisions. Tonics and nourishing diet should be early resorted to.

In the chronic form, cinchona, mineral acids, hydrastin, cod-liver oil, nourishing food, support and pressure by strips of plaster, and the continuous application of belladonna; and, when abscess forms, open in the most depending situation.

**MAMMARY ABSCESS.**—This very frequently results from inflammation, and may be acute or chronic; the acute invariably the result of active inflammation. We have them forming in all parts of the gland; in the substance of it, between the gland and the skin, or between the gland and walls of the chest.

The acute form of mammary abscess is ushered in with rigors during the progress of inflammation; engorgement of the breast, deep-seated or diffused, burning pains, throbbing and sense of weight, formation of a painful point, fluctuation, a good deal of constitutional disturbance.

The *chronic* form is the most important, because the lump or knot in the breast is very often mistaken for a malignant tumor. Matter forms very slowly. It is often the result of scrofula or derangement of the general health, without any prior inflammatory symptoms. It is of frequent occurrence in puerperal and sterile women. The first indications of this affection are, a hardness of the gland, soreness of the nipple; an imperfectly circumscribed and uneven tumor can be detected; fluctuation indistinct, often difficult to appreciate, owing to thickness of plastic effusion round the purulent collection. Nipple may be retracted. Adhesion occurs between the tumor and skin.

*Causes.*—Defective lactation is a common cause, and this is not very prevalent among healthy mothers, but frequent in the weak and delicate.

Three causes of defective lactation are met with: defective lactation from *plethora*, *anemia*, *torpor of the mammae*, strumous diathesis, cold, blows, irritation, &c., &c.

*Treatment.*—If the abscess be due to defective lactation from *plethora*, it is best treated by purgatives,—the best one here being castor-oil; alteratives, and all sorts of fermented liquors should be strictly prohibited. If from defective lactation from *anemia*, the health should be improved by every means,—animal food, milk punch, generous diet, with cinchona, hydrastis, nux, phosphorus, and either

the pyrophosphate or Vallet's mass, combined with *nux vomica*. If it be due to torpor of the *mammæ*, then stimulants are our best remedies, as passing a current of electricity through the gland, by the application of a carrot-poultice, the breasts to be kept warm; and a diet of beef, poultry, oysters, &c., will increase the secretion. Our best galactagogue remedies are, the castor-oil plant, internally; locally, fennel-water, dill-water, aniseed-water.

Abscess may be indirectly due to sore nipples; so that it is important to heal all slight excoriations, as well as chaps or fissures, quickly, if possible, by the application of some of the following remedies: *an ointment of balsam of Peru, a lotion of borax and glycerine*, carbolic acid and glycerine, tannin and tincture of *opii*, finely powdered spermaceti, dusted on, and afterwards a few drops of alcohol. If the fissures are deep, a little burnt alum, or blood-root, answers well; hamamelin and hydrastin; or the painful spots might be painted with collodion, leaving the summit of the nipple free for the escape of milk. A well made shield is of great advantage, often enabling a woman to nurse who would otherwise be unable to do so. The child's mouth should always be examined, so that, if there are aphthæ, they may be cured.

But, most generally, in the treatment of abscess, it is not a class of remedies to increase the secretion of milk that is wanted; we demand an opposite class of remedies to arrest secretion, until our other remedies act.

For the arrest of the secretion of milk, there is no remedy that can be compared with *belladonna*. The extract, diluted to the consistence of cream with glycerine, painted over the breast three times a day, and a piece of cloth smeared with the same applied, and, over and above all, oiled silk. The efficacy of the *belladonna* is much enhanced by the addition of two or three drachms of the iodide of potass to the ounce of the mixture of the *belladonna* and glycerine. *Lobelia* and *stramonium* act nearly as efficiently as the *belladonna*. I like them best in ointment form, with the addition of iodide of potass to it. Camphor, sage-tea, and a whole host of remedies have been recommended; but, in my experience, the *belladonna* is the remedy, and, to make it better still, iodide potass. If unable to prevent, or discuss the abscess, poultices of slippery-elm and bi-carbonate of soda should be applied, and, as soon as fluctuation is detected, it should be opened at its most depending position, and the wound kept open, good drainage kept up till all the matter has been evacuated. Compression by adhesive strips, if well adapted, will prevent sinuses, and, if they have formed, stimulating injections should be thrown in thrice daily, keeping up active compression, and, having obtained thorough evacuation by the poultice, establish a cure upon the black salve or the oxide of zinc ointment. Abscess in the mammary gland requires thorough attention to digestive and uterine organs. Tonics and stimulants should be freely given, nourishing food, &c.

**HYPERTROPHY OF THE MAMMARY GLAND.**—Hypertrophy of one or both breasts occurs both in the single and married. One gland is affected first; it begins to enlarge and slowly increases in size, and in the course of twelve months attains an enormous size. Very soon



the other breast becomes affected; not an inflammatory symptom being visible, no pain, no redness. Enlargement becomes burdensome and unsightly. The affected gland may project firmly from the thorax; or it may hang flabby and loose—pendulous breast. The general health is impaired. It is very frequently the result of masturbation, imperfect sexual intercourse.

*Treatment.*—All sorts of local and constitutional treatment have been tried, but with very unsatisfactory results. Improvement of the general health, attention to the uterine function, and the like, seldom benefit. Pressure, and the application of iodine, muriate ammonia, belladonna, &c., have all failed. Excision of both breasts and clitoris have been unsuccessful.

**MAMMARY TUMORS.**—The female breast is the seat of every variety of tumor, from the simple to the malignant.

**LACTEAL TUMOR** is a distention of one or more lacteal tubes, owing to occlusion of the orifices; or a rupture of a milk duct, with escape of contents into surrounding connective tissue. It occurs during lactation.

*Symptoms.*—A cystic growth, varying in size from that of a walnut to that of an orange, can be felt, which, when recent, is elastic and fluctuating. As the serous portion of the milk gets absorbed, the tumor becomes firmer and more solid; absence of pain; general health unaffected. Enlargement is usually discovered by accident, and usually alarms the patient.

*Treatment.*—Free opening in the most dependent position. Keep the wound open until it is well emptied, and then dress with the black salve.

**MUCOUS CYSTS**, consisting of dilated and expanded gland ducts, filled with mucus and epithelium. There are usually several cysts in one or both breasts. The growths seldom attain a greater size than that of a walnut. They are most common after forty-five years of age. A cure is often effected by puncture and pressure, and the application of pressure and stimulants to the gland.

**FATTY TUMORS** are frequently found in the breast, sometimes behind it, at other times in front of it, and, in some cases, it supersedes the whole gland. It often gives rise to immense hypertrophy, and is usually only inconvenient on account of its bulk.

**ENCHONDROMATOUS AND OSTEOID**, or cartilaginous and bony tumors, are frequently found in the breasts.

**FIBRO-PLASTIC GROWTHS** are of frequent occurrence; they often attain an immense size, and when they do so, the integuments ulcerate, giving exit to a fungoid mass, which very readily bleeds. The lymphatics are never involved, and the general health is good.

**CYSTS CONTAINING ENTOZOA** have been found in the breast; they have been detected by examining the contents of the sac. Sometimes curable by puncture and injections of the parent cyst, and afterwards compression.

By far the most common form of tumor in the breast, is either the non-malignant glandular tumor, or the malignant.

**THE CHRONIC MAMMARY**, or glandular tumor, a tumor of the breast,



which generally commences in healthy women, between the age of puberty and the thirtieth year; they are usually single; more common in the married; growth is slow and progressive; an enormous size is often attained. It sometimes remains stationary for a long time, and then rapidly increases in bulk; sometimes gradually diminishes, if absorption is active, but never disappears entirely. It is often due to mechanical irritation. Some of these tumors are dense, compact, lobulated, and provided with a fibrous capsule; ducts and sinuses are developed through the new growth. It assumes an immense variety of forms.

*Symptoms.*—The tumor begins as a small, movable, nodulated growth; isolated from the gland tissue; is not painful; does not involve the skin; nor are the lymphatics involved. As the tumor grows, the gland may atrophy; rate of growth very variable; if large, the integuments may ulcerate, and the tumor protrude through the ulceration.

*Treatment.*—Remedies to induce absorption, with the application of an ointment of the iodide of lead and compression, are often advantageous, but if the growth increases, removal by the cauterizer or knife should be resorted to.

*The malignant form of tumor of the breast, or cancer of the breast,* is extremely prevalent; we meet with it of the nature of scirrhus, medullary or colloid. *Scirrhus* is by far the most common; generally only one breast is affected; exceedingly common between the ages of forty and fifty. The tendency of the disease is to increase progress onward towards death. If the diathesis is strong, ulceration is rapid, terribly destructive, the pain lancinating and poignant; the glands and lymphatics are early affected; the standard of health is diminished; flesh and strength rapidly give way; the sallow cancerous cachexia lead to morbid deposit in other and more vital organs, and, unless a thorough alterative course is quickly pursued, life will be destroyed in four years from the commencement. The secret remedy for the removal of this cancer is given under the head of cancer.

The male breast occasionally becomes the seat of malignant disease.

**MAMMILLARY DISEASES.**—The mamilla, or nipple, may be the seat of morbid processes.

*Inflammation* of the nipple is very common at the commencement of lactation. Exquisitely painful ulcers or abrasions, fissure, chaps, cracks. The intense suffering attendant on this often impairs the health; there is a constant fear, mental depression, loss of appetite, restless nights. This may often be prevented by bathing the nipple, during the last few weeks of pregnancy, with astringents, as hamamelis, tannin and port-wine, glycerine, borax and myrrh, &c.

Chronic eczema, psoriasis, malignant disease of the nipple, must be treated the same as the disease in other parts.

The intimate relation of the mammary gland to the uterus is a point of great interest to the scientific physician; the prompt response of a stimulus to the nipple, as must obstinate amenorrhœa; the enlargem

is the least activity in the uterus, either from inflammation, true or spurious pregnancy, or any form of congestion, uterine or ovarian.

## PREGNANCY.

From the period of puberty, that is, about the age of fifteen, until the change of life, which is usually about forty-five, (varying several years, according to the constitution and temperament of the patient,) there is, in a healthy female, a periodical discharge of blood from the uterus. The discharge continues from three to six days, and recurs very nearly once in twenty-eight days, and continues as long as the female is capable of conceiving—as long as ova are developed. This discharge is termed the menses, and the process, menstruation.

Menstruation is merely ovulation; whenever the sexual apparatus is fully developed, and the health of the patient normal, or nearly so, a *germ cell, an egg or ovum*, is evolved from the ovarian bed, passed along the channel of the fallopian tube into the uterine cavity, and, unless impregnated in its course, by meeting and mingling with the sperm-cell, or semen of the male, and fixed upon the walls of the utero-fallopian canal, it is expelled through the vaginal passage; a process, if not interfered with, which is repeated monthly.

This process is not always attended with a discharge of blood. Menstruation may occur without the loss of a drop of blood, as often happens in females who are nursing. No woman, when pregnant, or during the first fifteen months of lactation, if perfectly healthy, should menstruate, and if such a condition exists, it should, if possible, be arrested by the exhibition of tonics, as cinchona, hydrastis, phosphorus, for, if not arrested, the child will be strumous.

Why should there be a discharge of blood as an incident of menstruation? All organs whose functions are performed periodically—as the ovaries during ovulation, the male organs during coition, the breasts during lactation, the stomach during digestion—have a special determination of blood and nervous energy to the part, when the function is to be exercised. This is to supply the part with material necessary for the proper performance of its function. In the case of digestion, the increased quantity of blood sent to the stomach is to supply material for an abundant secretion of the gastric juice. In sexual congress the blood is specially determined to the organs concerned in secreting the seminal fluid, and conveying it within the sexual organism of the female. In menstruation, the special determination of blood and nerve force furnish the elements for the evolution of the germ and its nourishment. It would seem, also, that a certain degree of distention, congestion, plethora, hyperæmia is indispensable to distend the capillary vessels, so that the fimbriated extremity of the fallopian tube may grasp more completely the mature ovum, and insure its passage to the uterus; and if the ovum, in its passage, becomes impregnated and fixed to the walls of any part of the reproductive channel, the usual quantity of blood may be needed to supply the elements of nutrition for its nourishment and growth.

The quantity of menstrual blood lost by the large proportion of

females is entirely too great. This results from a relaxed condition of the whole uterine fabric, and upon our artificial mode of living. Women who live a simple life are less enervated by luxuries, and, even though exposed to toil, hardships, and privations, have comparatively few sexual disorders so common to those who lead a life of fashion, and they lose comparatively little blood during menstruation.

The average quantity of menstrual discharge varies from two to three ounces, but cases are quite frequently met with where it is as high as six or eight ounces; this generally results from a laxity of habit, and must be regarded as abnormal.

Impregnation depends on the conjunction and union of certain elements furnished by male and female organs, each of which is equally necessary to the production of the future being. The future being, in all its bodily, intellectual, and moral qualities and powers, and during the whole period of existence, is vastly superior to what is commonly appreciated—dependent on the conditions of the sperm-cell and the germ-cell, furnished, respectively, by the male and female parent.

It is true, correct training, proper education, and intellectual surroundings may enable a frail, imperfectly organized embryo, to become a better adult than one surrounded by the opposite influences. But the principle is clear, and of great practical importance, that the qualities of the germs must for ever attach to the fœtus, the child, the youth, the adult. Effects, like their causes, are eternal, and this universal law imposes a duty on parents which should never be overlooked.

The only conditions requisite for impregnation are, the contact of the living sperm-cell with the matured ovum, within the sexual apparatus of the female.

The idea that a certain degree of pleasurable feeling, at the crisis of the sexual act, is essential to impregnation, is clearly a mistake, for women who never enjoy pleasure, but suffer pain, are often quite as prolific as others. Impregnation and conception may occur, when the female is insensible from narcotics, or alcohol, or violated by forcible means.

Impregnation has occurred when the seminal fluid, expelled without coitus, has been passed into the vagina by artificial means.

It is true, that the sexual organism on the part of the female is just as normal as on the part of the male. It is true that the maternal parent cannot imprint or impart, or transmit her own mental and physical characteristics so completely as when the act is perfect. This subject is one of vast importance to the welfare of the human race.

The sensibility of the sexual organs, in many females, is so lost, in consequence of prolonged disease, and improper medication, that they are incapable of fulfilling the sphere allotted to them in life.

Impregnation is not conception. The ovum may be fecundated by intermixing with the elements of the sperm-cell, without pregnancy resulting. *Whenever, in the generative passages of the female, the living spermatozoa come in contact with* occurs. But the impregnated ovum



nary monthly process of ovulation. Many cases of sterility are attributable to the irritability of the uterus to retain the ovum after its impregnation, in consequence of weakness, relaxation, leucorrhœa. Violent exertion will occasion uterine contraction sufficiently strong to cause its expulsion hours and even days after impregnation. If the impregnated ovum becomes attached to the walls of the uterine cavity, the process of foetal development at once commences.

This attachment or fixation is the true period where conception starts. How soon this *fixation* occurs after impregnation is a problem not settled. The time varies much with different females, as do all the functional processes concerned in menstruation or pregnancy. This attachment may take place in the fallopian tube and ovary, as is proved by the cases of extra-uterine pregnancy which now and then occur. But, unquestionably, the uterus is the proper place for normal conception.

PREVENTION OF PREGNANCY.—There are often certain conditions which exist, which render some women unfit for the sacred office of mother, as disease, deformity, &c., &c. The desire for offspring, implanted in the breasts of all women, is one of the strongest of her nature. It is all-absorbing—all-controlling. It is only in diseased conditions that the pains and perils of labor are dreaded. The number of married women suffering from malformation of the pelvis, constitutional frailty, or local disease, who cannot become pregnant without endangering their lives, is quite considerable; while some are so contaminated by scrofula, so disorganized by mercury, so devitalized by tight-lacing, sedentary habits, &c., that they ought not to become mothers.

Abstinence is infallible; but this is not possible nor proper. If sexual intercourse were limited to one-half of each month, when all is quiescent, pregnancy would seldom occur. It is well known that any sudden motion which agitates the pelvic viscera and causes the uterus to contract vigorously, will prevent pregnancy. Drastic purgatives will have this effect; violent coughing, sneezing, have the same effect; lifting, &c.; not because they expel the semen, as some have supposed, but because they occasion the uterus to contract, and, if its contractions are sufficiently vigorous and prolonged, the egg is sure to be expelled.

It is probable that adhesion or fixation occurs very soon after impregnation; indeed, no sooner are the sperm and germ elements blended by commixture, than the process of adhesion commences; and, unless uterine contractions be excited immediately, the attachment may become so firm as to resist the ordinary means for the detaching.

Impregnation is the meeting and commingling of the sperm-cell and the germ-cell—the male semen and the female ovum. Conception is the attachment of the impregnated ovum to the place where it is to be developed until the period of birth. The uterus is the proper place for development, and whatever excites motion in the uterus causes it to expel its contents. If an egg is present, and is impregnated, it must adhere or become fixed to the uterine wall, or it cannot develop—there is no conception. But if, from any cause, the uterus, imme-



diately after impregnation, is so disturbed as to cause it to contract vigorously, it will expel the egg notwithstanding the impregnation.

With regard to the sex of the offspring, no problem of vital organization seems to be wrapped up in such impenetrable obscurity; but nature has no works, no processes, either in the organic or inorganic world, which are not determined by exact and irreversible law,—a law of nature.

Eminent physiologists have attributed the difference of sex to the greater vitality of either parent. It is no doubt true that the greater constitutional energy of one parent will materially modify the child, whether it be male or female; but this cannot determine the sex.

Whether the late German theory be true, we do not profess to know, that is: "The organs of the right side, respectively, of the male and female, pertains to the male sex, and the organs of the left side to the female sex. In other words, the right testicle produces male sperm-cells, and the right ovary of the female, female germ-cells, whilst the left testicle produces female sperm-cells, and the left ovary female germ-cells. The semen of each testicle can only impregnate the ovum of the corresponding ovary."

Whether the theory that all children of a certain sex are those whose conception has occurred in the first half of the time between menstrual periods, and producing female offspring, or male in the latter part, we are unable to say.

But the chief point of interest to the philanthropic physician, is the one of hereditary transmission. The birth-right of every American child is a sound organization; and this we cannot have until the human temperaments are taught in our public schools, and their great principles carried out into practice; this we cannot have until syphilis, scrofula, intermarriage of relatives, and drunkenness, are more thoroughly understood by the masses.

The signs or symptoms of pregnancy are sometimes so annoying as to call for special attention.

The most common of these signs are as follows:

The suppression of the menstrual discharge is the first well-marked sign,—merely presumptive; nausea and vomiting, with capricious or depraved appetite; salivation, enlargement of the breasts, milk in the breasts, enlargement of the abdomen, nervousness, oedema of the lower extremities, quickening. With some there is a fresh color of the areola of the nipple; with others, an apparent diminution of the abdomen, lassitude, and moping about; with others, an increased vigor of body and spirits.

**AFFECTIONS OF PREGNANCY.**—The different stages of pregnancy have each a distinct class of symptoms; and, when we reflect on the alteration which the constitution suffers in consequence of impregnation, and the vast distention and enlargement of the uterus, which prevail at an advanced period, we cannot be surprised at the many complaints and irregularities which then arise.

Pregnancy is usually ushered in with a suppression of the menses, together with nausea, vomiting, heart-burn, headache, giddiness, toothache, and

breasts become enlarged; shooting pains extend through them, and the circle round the nipple alters to a dark-brown color.

There often occurs a febrile disturbance, with debility, emaciation, irritability, and peevishness of temper, and a complete alteration of the countenance, every feature of which becomes sharpened; the conformation of the body adapts itself to the change. Some women conceive so easily, and carry through their pregnancy so placidly, as scarcely to experience any inconvenience whatever; whilst others, again, suffer much, and often are perfectly incapable of retaining the least thing on their stomach, and are thus often reduced to a state of extreme weakness.

With some women, the vomiting is the most persistent symptom, and may continue for many months. Partial suppressions of urine, with a frequent inclination to void it, itching about the external parts of generation, constipation, tenesmus, and piles, are what they are chiefly troubled with during the first half of pregnancy. Most women quicken about four or four and a half months after conception, at which time the mother becomes sensible of the slight efforts of the child; and, besides the complaints just enumerated, she will then be liable to sudden faintings and slight fits of hysteria.

During the last three months of pregnancy, general uneasiness, restlessness, particularly during night, constipation, oedematous swellings of the feet, ankles, and private parts, cramps in the legs and thighs, difficulty in retaining urine for any length of time, varicose swellings of the veins of the abdomen and lower extremities, and piles, are the affections which usually prove most troublesome. In weak, delicate women, of an irritable habit, convulsive fits sometimes arise, which are ever to be regarded in a dangerous light.

**NAUSEA AND VOMITING.**—It has been observed that frequent nausea and vomiting are apt to prove somewhat troublesome to pregnant women, and, in many cases, to reduce them to a state of very great debility. As these most frequently arise immediately upon first getting out of bed in the morning, the patient should be recommended, under such circumstances, never to rise until she has taken a cup of strong coffee, or whatever else she has usually accustomed herself to for breakfast.

If the vomiting should become at any time so severe as to threaten the bringing on of a miscarriage, from the violence of straining, it may be advisable to give two or three tablespoonfuls of the citrate of magnesia, and regulate the bowels with juglandin and leptandrin, or other mild laxatives. If these do not succeed, give the oxalate of cerium, in five-grain doses, every three hours; if it is accompanied with much pain in the stomach, then nux vomica, with cypripedin, gelsemin, lupulin, scutellarin, with counter-irritation over the epigastric region, may be employed with advantage; or, a warm fomentation of hops and stramonium. The following remedies will be useful in certain cases: an infusion of the swamp dogwood, or *ptelea trifoliata*, or black cohosh; champagne wine is excellent; small doses of ipec. or lobelia, well triturated in sugar; ice, soda-water, turpentine, creosote, lime-water, an infusion of bark; if none of these

means succeed, we often can give small doses of the arterial sedatives, and, if it depends on irritation, these will remove it.

Local applications are useful to abate excessive vomiting, such as a piece of folded linen cloth, wet with tinct. opium, kept constantly applied over the region of the stomach, or equal parts of the tincture of gelsemin and veratrin; or chloroform would increase the effect. In some cases, vomiting may be persistent, and accompanied with great prostration of strength and constant thirst, and, at the same time, an utter impossibility of retaining anything on the stomach. In this condition, the application of tinct. of iodine on the pit of the stomach, and a constant attention to allow nothing to be swallowed that can irritate; allowing the patient bland diet, and of the smallest quantity, has been found to afford relief. But if we have a considerable degree of nausea prevailing, without the ability to throw it off, an emetic should be given, experience having proved that gentle emetics may be administered with safety to pregnant women.

**HEADACHE WITH PLETHORA.**—When either headache, drowsiness, or a sense of fullness in the vessels prove troublesome, giving occasionally a few drops of aconite will be attended with advantage. In a weak, irritable habit, the addition of gelsemin will be advisable; if it resist the influence of these remedies, then *chelidonium*, *cannabis*, *stativa*, *ignatia*, *pulsatilla*, and *veratrum*, are specially indicated. The headache is a sympathetic affection; the concomitant result of deep-seated disturbance. The vegetative system is at fault; stomach, liver, bowels; and the use of the neutralizing cordial, with *leptandrin* and *juglandin*, are specially indicated.

**TOOTHACHE.**—For the alleviation of toothache, two *podophyllin* granules every night, and locally to the tooth; the saturated tincture of aconite or gelsemin, or carbolic acid, *lobelia*, oil of cloves, &c., may be tried.

If it occurs in nervous patients, the following remedies are of great value: *cypripedin*, *cimicifugin*, *belladonna*, *quinine*, *staphisagria*, *pulsatilla*, *hyosciamus*, *phosphorus*, &c., in average doses; if accompanied with plethora, active secretions; stimulating the liver, kidneys and bowels. In some cases, counter-irritation.

**HEART-BURN.**—If the patient is incommoded by heart-burn, it usually proceeds from some acidity of the stomach, and an alkali may relieve it, but it is well to regulate the diet, rendering it plain, moderate in quantity; restrict the quantity of sugar; avoid cold; keep the feet warm. Other cases, again, fail to be benefited by that class of remedies, and acids, such as the *nitro-muriatic acid* and bitter tonics. These failing, good results follow from the exhibition of *nux vomica* and *hydrastin*; *pelein* and *ipecac.*; *cinchona* alternated with *subnitrate bismuth*.

**LONGINGS.**—When peculiar longings arise in a state of pregnancy, they should, if possible, be gratified, as some extremely nervous women are apt to miscarry, from the anxiety these occasion, when not indulged in; but, that the child in utero can be stamped by any depraved appetite of the mother is an absurdity that cannot be admitted.

**PTYALISM OR SALIVATION** frequently occurs during the early months,



and seldom requires any treatment; it differs from mercurial ptyalism in the absence of tenderness of the gums; fetor of the breath, &c. It is usually accompanied with acidity, and the best treatment consists in neutralizing this by repeated doses of the neutralizing cordial, or lime-water, or liquor bismuth, and the mouth and throat might be washed with a solution of the sulphate of hydrastin or hamamelin. Ten grains bi-carb. potassa, in a tablespoonful of water, generally succeeds.

**HYSTERIA.**—Should any hysterical affection or sudden fainting occur, little more will be necessary than to expose the patient to the free open air; place her in the horizontal position—give small doses of cypripedin, scutellarin, &c. Hysteria, in a pregnant female, generally arises from a torpid state of the bowels, or an accumulation of undigested fecal matter, and attended with acid eructations, flatulency, fullness and pain in the epigastrium, constipation, nausea, languor, faintness, giddiness; nux vomica, belladonna, stramonium, hyosci-amin, coffee, pulsatilla.

In a long and extensive practice, I have found no remedy to excel the caulophyllin. Its action, in small doses, is positive on the uterine motor nerves.

**CONSTIPATION.**—This is a common attendant of pregnancy, and is frequently obstinate and troublesome. It is not, in itself, a disease, but depending upon some state or condition, which consists in a suspension of peristaltic action; it may depend on exhaustion or suspension of the nervous power of the rectum—it may be occasioned by the great pressure of the uterus on the rectum, which diminishes its diameter as well as impairs its activity. Constipation may be owing to chemical or digestive derangements, improper food, sedentary habits, and other causes calculated to lessen the energy of the intestines. Various other symptoms of this condition of the bowels, as headache, sleeplessness, irritability, pains in the abdomen, nausea, and, in the later periods, false pains. Constipation is not a good symptom, because of its tendency to produce abortion and retard labor.

The common treatment of constipation by purgatives is not in accordance with science. It should be cured by improving the secretory power of the arteries.

The patient should observe certain rules, such as endeavor to relieve the bowels at a particular time daily, immediately after the morning meal. Moderation in the quantity of food, and regularity in eating; regular sponging of the whole body, friction to the spine, exercise, &c. The best remedies consist in a combination of leptandrin, bryonia and nux vomica; or pulsatilla and veratrum.

But, aside from medication, a mild cathartic enema, employed at a particular hour, will give the greatest relief, and restore the necessary tone. Piles are usually the consequence of constipation in the pregnant female. Enemas of cold water, and, as far as possible, bringing the diet and habits of the patient to bear on the case. If any remedies, in addition to the above, is needed, the neutralizing mixture, with leptandrin or euonymin and nux will be sufficient. The difficulty in all cases should be removed prior to the approach of parturition.

**DIARRHŒA.**—If diarrhœa arise in a pregnant woman, it should be



treated according to the indications; first, by clearing the stomach and intestines with the white liquid physic; or neutralizing cordial and leptandrin; or small doses of ipec.; or coffee, aconite, pulsatilla and dulecamara, will all be found of the highest value; following any of these remedies with a combination of hydrastin, myricin and hyosciamis.

Thorough hygiene should be the rule—warmth, a light farinaceous diet, an occasional cup of warm coffee, rest, a moderate temperature.

With regard to the dose of the above remedies in this form of diarrhœa, let the dose be sufficient. Large doses here are not admissible, for, when the motor nerves possess their normal power, large doses, by over-exciting them, exhaust their power, and constipation results; when they are weakened by any cause, the moderate stimulus of medium doses of the above remedies removes the paralyzed state of the nerves, cures the diarrhœa, prevents subsequent constipation.

GASTRODYNIA, spasm or cramp of the stomach, is sometimes severe, and the treatment should be prompt, energetic, and adapted to the cause; usually nux, sub-nitrate of bismuth, hydrocyanic acid, are sufficient, with warm fomentations to the epigastrium.

In other cases, small doses of lobelia, or dioscorein, or gelsemin; acidity should be neutralized; secretions regulated; diet light and nutritious. Generally alkalies, anti-spasmodics are only required.

PALPITATION OF THE HEART is of common occurrence during pregnancy; it is a distressing but not a dangerous symptom, although it may occasion alarm to the patient. Acidity, flatulency, &c., must be first overcome, then valerian, musk, or other anti-spasmodics. Digitalis, in alternation with the cactus grand, will meet the difficulty. Then trillin, caulophyllin, iron by hydrogen, to improve any abnormal condition.

DYSPNŒA, or difficulty of breathing, may occur from sympathy as well as from the presence of the enlarged uterus; it may occur from other causes, such as derangements of the digestive organs, disease of the heart. The treatment best adapted is the administration of anti-spasmodics, more especially small doses of gelsemin, ipec., lobelia, digitalis, hydrocyanic acid, bromine, &c., and attention to the secretions; if due to enlarged uterus, little can be done.

COUGH sometimes occurs, arising in most cases from sympathetic action. It is usually dry, short, hacking and constant, occasionally very severe, with but little or no expectoration, no febrile disturbance. It is best treated by narcotics, anti-spasmodics, rest, regularity of the bowels, proper attention to diet.

The best remedies are, small doses of tincture of belladonna and gelseminum, or a combination of tincture of lupulin, skull-cap, and hyosciamus.

MASTODYMIA.—A painful and distended condition of the breasts is very apt to attend pregnancy. To remove congestion and prevent inflammation, tepid fomentations of hops, or some anodyne liniment, as the tincture of stramonium and gelseminum, or tinct. opii et veratrum, or a mixture of hartshorn, camphor and chloride sodium.

MUSCULAR PAIN about the pelvis or hips, or abdomen, frequently accompany pregnancy. The cause of these pains is usually dependent upon an irritable condition of the nerves of the painful muscles, and should be treated by rest, frictions, and the application of a bandage.

SUPPRESSION OF URINE.—When a suppression of urine takes place, which is apt to happen in an advanced stage of pregnancy, besides making use of emollient fomentations and very mild cathartics, the patient might drink some mucilaginous diuretics, such as an infusion of marsh-mallow, peach-leaf, pipsissewa, to which sweet spirits of nitre or citrate of potassa might be added; and, in some extreme cases, the catheter may be employed.

## STOMATITIS MATERNA.

### NURSING SORE MOUTH.

This is a disease peculiar to those who are, or are about to become, mothers, and is attended with painful inflammation of some portion of the lining membrane of the mouth.

Although inflammation of the mouth is a symptom attending a general condition of the whole system—where the elementary constituents of the blood is deteriorated, anemia is seldom absent in well-marked cases—there is a cachexia, either scrofula or scorbutus, always present, and this is excited or brought into action by pregnancy or lactation. But I do not think that pregnancy or lactation are sufficient of themselves, without some other exhausting influence, to produce it. It is true, the disease presents the peculiar characteristic local symptoms, and is found in subjects who are *enciente* or in the puerperal state. It must never be confounded with aphthæ. Anemia or scrofula are usually well-marked. There are several grades of the affection, from the mild to the most intense, and the local symptoms are soon followed with different affections of the alimentary canal, all of a destructive or ulcerative character.

*Treatment.*—The first step in cure is the removal of the cause. If it is due to malaria, imperfect ventilation—change of abode, are the appropriate remedies. If emaciation and debility be the cause, tonics, proper diet, animal food, milk, eggs, cream and brandy, or cod-liver oil. If we have diarrhœa, the neutralizing mixture, with nux vomica; alternate with phosphorus: and, if persistent, astringent injections and nitro-muriatic acid.

*Cinchona* is indicated where the edges of the tongue are ulcerated, aphthæ, violent pains; and if the gums readily bleed, teeth loose, with debility, alternated with hydrastin.

*Gold*, where a corroding tendency is manifest, and permanganate of potash if the breath is of an offensive, putrefactive odor.

*Nitro-muriatic acid*, where the nutritive system suffers thorough perversion.

*Nux vomica*, if there is diarrhœa.

*Nitric acid*, if the gums are white, teeth loose, &c.

The veronica-beccabunga, internally and locally, is used with success.

*The local treatment.*—This will fail unless the constitutional treatment is active. The best local remedies are, washes or solutions of *permanganate of potash*, *hydrastin*, *frazerin*, *juglandin*—used frequently. Above all things, attend to diet; let it be nutritious, easily digested and assimilated. Beef tea, oyster soup, and an abundance of fruit, as baked apples, oranges; lemonade, weak.

After a cure is brought about by a special treatment, establish convalescence upon iron, hydrastin and vegetable tonics, using for some time strong infusions of gold thread and raspberry-leaves as washes.

## ABORTION.

By abortion is to be understood the expulsion of the contents of the gravid uterus at a period so early as to render it impossible for the *fœtus* to live. It is an accident or disease of frequent occurrence, which is always attended with disagreeable circumstances, and which, although it seldom proves immediately fatal, may still be productive of much mischief at a future period.

Abortions may happen at any period of pregnancy, but they take place most frequently about the third or fourth month. From the end of the third month to the period of quickening, there is a greater susceptibility in the uterus to have its action interrupted than either before or afterwards, which seems to be the reason of more miscarriages occurring at that time than any other, and points out the necessity of rigid watchfulness against the operation of any of the causes from the tenth to the sixteenth week, that may be likely to excite abortion. Some authors describe *premature labor* as occurring the seventh and full ninth month.

When a female loses a *fœtus* prior to the seventh month, she is said to have miscarried, or aborted; but when delivered of it after that time, the term labor is applied.

Children born at the end of the seventh month are seldom reared, and when they are, they usually prove small and sickly. In consequence of an imperfect conception, it sometimes happens that moles, or substances of a fleshy nature, are developed in the uterus, and these, at length, becoming detached, give rise to a considerable degree of hemorrhage.

As some women menstruate during their pregnancy, it is highly important to distinguish between an approaching miscarriage and a visitation of the menses, which may be readily done by the symptoms, whether or not the hemorrhage has proceeded from any evident cause; whether it flows gently or is accompanied with unusual pains, frequent micturition, &c. The former generally arises from some fright, surprise or accident, and does not flow gently and regularly, but bursts out of a sudden, and again stops all at once, and is attended with severe pains in the back and abdomen; whereas, the latter is marked with no such occurrences.

Voluptuous women, of a plethoric habit, as well as those who are of a weak and irritable constitution, are most prone to miscarry; but



accidents of this nature sometimes occur from a general defective constitution, or from a malformation of the sexual organs.

The causes of this accident are numerous, and have been divided into constitutional, ovuline, uterine and accidental.

*The constitutional causes* are, tuberculous diseases, as scrofula, phthisis, epilepsy, leucorrhœa, syphilis, fevers, &c.

*The ovuline causes* are numerous, the foetus may be attacked with disease, as syphilis, debauchery, feeble vitality, &c.

*The uterine causes* are, prolapsus, irritability, uterine congestion, tumors, cancer, disease of the ovaries, anteversion and retroversion. Of all these, retroversion is the most common cause of abortions—a condition in which the fundus uteri is retroverted and pressed down between the rectum and vagina. This rarely occurs, however, beyond the first or second month of gestation, and is generally preceded by a difficulty in making water, and a consequent tumor of the bladder; a violent pain about the perineum, and a miscarriage is liable to follow.

A pregnant woman may be attacked with a flow of blood from the womb, in consequence of any cause which is capable of separating a part of the ovum from the corresponding parts of the uterus. The vessels which before passed straight from its internal surface into the membranes or placenta, and connected them together, now open, so as to allow the blood to escape between them, and to flow externally. This separation and consequent rupture may arise from any of the various causes just enumerated; in a few instances it is occasioned by placenta prævia—that is, an implantation of a part of the placenta immediately over the os uteri; which cause is by far the most important, because it is the most dangerous, and the least likely to find a spontaneous remedy.

*Symptoms.*—These are much modified by the cause; generally abortions are preceded by a sense of coldness, flaccidity of the breasts, slight pain in the loins and lower portion of the abdomen, and sometimes with a slight febrile state of the system. In plethoric habits, and where abortion proceeds from over-action, or hemorrhagic action of the uterine vessels, the fever is purely idiopathic, and precedes the hemorrhage. After a short continuance of these symptoms, a slight discharge of blood ensues, coming away sometimes in clots, and at others gushing out in a florid stream, then stopping for a short time, and again returning violently.

Sometimes nothing but coagulum can be perceived, that is so firm, and the globules and lymph so disposed as to make it assume, more especially if it has been retained for any time about the uterus and vagina, a streaked or fibrous appearance, which often gives rise to a supposition that it is an organized substance. When the contents of the uterus are expelled, a bloody discharge continues for a few hours, which is succeeded by a serous fluid.

When the pregnancy is advanced beyond the third month, the abortion likely to occur, we have much bearing down, together with a derangement of the stomach, causing sickness and faintness, and we, likewise, have a most rapid discharge, owing to the increased size of



the vessels. In this stage the membranes often give way, and the fetus escapes with the liquor amnii, whilst the rest of the ovum may be retained some hours, or even days, when it is at length expelled with coagulated blood. In some cases the whole ovum comes away entire. After the expulsion, the hemorrhage ceases, and is succeeded by a discharge the same as the lochia.

With regard to the symptoms and duration of abortion, there is a great diversity in different instances. In some cases the pains are very severe, and long continued; in others, short and trifling. Sometimes the hemorrhage is profuse and alarming; at other times it is moderate and inconsiderable. Often the sympathetic effects of the stomach and bowels are scarcely productive of inconvenience, whilst in the greater number of cases they are very prominent symptoms. As there is a diversity in the symptoms, so there is also in the duration of the abortion; for, whilst a few hours in many, and not above three days in the majority of cases, is sufficient to complete the process, we often meet with other instances in which it is threatened for a long time, and possibly some weeks elapse before the expulsion takes place. Floodings are more or less dangerous, according to the stage of pregnancy in which they happen. The more advanced the stage, the greater the risk, especially if unaccompanied by labor pains, as the mouths of the vessels which pour out the blood are much enlarged during the last stage of pregnancy, and, of course, a large quantity might be discharged in a short space of time. Although miscarriages before the fifth month are seldom attended with immediate danger, the loss of blood being generally small, they, nevertheless, very frequently lay the foundation of many troublesome disorders. Some women abort monthly; have habitual miscarriages, and observe a stated period for successive pregnancies; these are more prevalent about the third month than at any other time.

The danger of abortion is to be estimated by considering the previous state of health, habit of the patient, the violence of the discharge, the duration of the complaint, the difficulty of arresting it, the disposition to expulsion which accompanies it, the period of gestation at which it is threatened, the frequency of occurrence, and its combination with spasmodic affections and convulsions.

**PROPHYLAXIS.**—This is very important, not only to check an abortion, but proper means should always be resorted to, with the view of preventing such an accident in those who habitually suffer from such accidents, so that it is very proper to attend to the history of such accidents, the temperament of the patient, her general well-being, &c.

A woman subject to habitual abortions, and who is of a full, plethoric habit, should have all the secretions well regulated, use a spare diet, consisting principally of vegetables and farinaceous articles, and avoid all agitation of both mind and body, and such objects as are likely to create disagreeable impressions. Small doses of belladonna, or pulsatilla, or hyoseiamin and caulophyllin.

The primary action of caulophyllin is capable of preventing it if the ovum is not detached. The sleep of the patient should be abridged

she should repose on a hair mattress, and there ought not to be a great quantity of clothing about. Daily regular exercise, never carrying it to fatigue. If the circulation be strong and vigorous, we would give digitalin and veratrum in combination, continuing these till after the usual period of miscarrying. If the patient is of a weak, lax habit, a nutritious and generous diet, moderate exercise in a carriage, cold bathing, tonics, will be necessary, the patient, at the same time, avoiding all exciting causes. During gestation, it is always proper to live *absque marito*. The greatest attention should be paid to the avoidance of exciting causes. In some cases, it may even be necessary to confine the patient to her room until the period at which she usually aborts passes over.

In those cases of habitual abortions, accompanied with spasmodic pains in the uterus, or a disposition to convulsions, either opium or stramonium proves highly serviceable.

Where nausea or vomiting prevails to a high degree, then the subnitrate of bismuth, ipecac. and oxalate of cerium, may be implicitly relied on, and, locally, a stramonium plaster over the region of the stomach. A threatened abortion from some slight separation of the placenta from the uterus, may, nearly in all cases, be arrested by judicious treatment.

On the very first appearance of hemorrhage, the patient should be confined to bed, the horizontal position strictly maintained; the head should be low, the pelvis well elevated; the patient should be kept cool, and perfect rest inculcated; all food or drink of a stimulating nature should be strictly prohibited. For the purpose of moderating the symptoms and preventing it, digitalis may be given. If the discharge appears, or is copious, it is advisable to give oil of erigeron in small and frequently repeated doses, so as to keep up a constant effect; and this may be combined with such remedies as perchloride of iron, phenol, &c. To assist the effect of these remedies, enemata of ice-water may be injected from time to time, and cloths, wrung out of cold vinegar, to be kept constantly applied to the back and around the parts of generation.

Astringent injections, composed of the infusion of oak-bark, or alum, or sulphate of zinc, or permanganate of potash, or perchloride of iron, are often employed with advantage; and, where there is hemorrhage, they prove beneficial, and ought, therefore, to be used. In such cases, it is sometimes well to trust to the formation of a coagulum. Rest will be absolutely necessary, if we wish the patient to carry through her full term; and, therefore, it is sometimes proper to confine her, for a few weeks, to bed, at the same time that we put her upon digitalis and anodynes, keeping the secretions normal by mild aperients.

*Treatment.*—Where we cannot prevent abortion, our chief point in treatment should be to conduct the patient safely through the process; and the point which claims our attention is the hemorrhage. For this purpose, we have a wide selection of remedies. A suitable remedy may be selected from platina, pulsatilla, ergot, cinchona, erigeron, &c., &c.

Digitalis is particularly suited to patients of a sensitive and impres-

sible organization; pulsatilla and platinum are pre-eminently suited if the patient is of a cancerous diathesis; belladonna and erigeron, if the patient is plethoric; ergot and cinchona, if we have an æsthenic condition of the uterus. If the patient is enfeebled, cachectic and anemic, chamomile and erigeron are well adapted to bilious and nervous constitutions. We have also derived benefit from phosphorus, crocus-sativa, hamamelin, trillin, &c. In urgent cases of hemorrhage, full doses of the remedies, frequently repeated, until the symptoms abate.

The exhibition of remedies internally should also be aided, especially if there is danger from great loss of strength; it may be necessary to resort to powerful astringents, as alum, perchloride of iron, erigeron. As soon, however, as the hemorrhage has ceased, then a gentle purge of castor-oil should be administered, in order to prevent the bad effects of these remedies on the coats of the stomach. The application of linen cloths, dipped in cold water, all around the pelvic region, has a good effect, and should not be neglected. The introduction of a small piece of smooth ice into the vagina has a very speedy effect in arresting the hemorrhage; but this should not be continued long enough to produce pain. The hips should be well elevated and supported, while the head and shoulders are lowered; and the patient should be kept cool and free from excitement.

I have found injecting the uterus with a solution of sulphate of iron, or the perchloride or phenol, a most effectual local method of arresting the hemorrhage; next best, plugging the vagina with a piece of soft cloth, dipped either in the oil of erigeron or phenol. Introduce, with finger, portion after portion, until the lower part of the vagina be well filled. The remainder is then to be firmly pressed in the orifice, and held there for some time. This acts by astringing the vessels, and also by giving the effused blood time to coagulate. In obstinate cases, if none of these remedies are at hand, a little pounded ice, wrapped up in a cloth, is easily procured. We need scarcely mention that the application of a roller, eighteen inches wide, embracing the upper portions of the thigh and uterus, with the application of the uterine pad, should not be neglected.

To recapitulate the means which we are to employ for restraining the hemorrhage: If the pulse be full, hard and frequent, veratrum, digitalis; the application of cold to the external parts; the injecting the uterus; keeping the body at a low temperature; enjoining absolute rest; cold, acidulated drinks; the exhibiting of such remedies as erigeron, plugging the vagina, &c. When any sickness or great feebleness attends an abortion, champagne wine, or soda-water, or Beach's wine bitters, are good remedies. In great disturbance of the stomach, iced champagne is my favorite. Spasmodic pains in the bowels are best relieved by small doses of lobelia.

In all cases, where a considerable hemorrhage has begun, particularly at an advanced period of pregnancy, it is well to ascertain its cause and remove it, or let it be the guiding point in treatment.

In all cases, during the last stage of pregnancy, where our endeavors to arrest the hemorrhage prove abortive, and the life of the patient becomes endangered by its severity, it will be advisable to deliver as

quickly as possible, by exciting the contractile power of the uterus with the appropriate stimulus, as ergot, erigeron, &c. It sometimes happens, in abortions, that the whole ovum does not come away at once, but only the foetus; and that either a part or the whole of the secundines remain behind. These should always be removed, if possible, as their retention gives rise to an offensive discharge from the vagina and constitutional symptoms. If unable to extract by the fingers or the placental forceps, I have found injecting the uterus with the ordinary gutta-percha uterine syringe, with either an infusion of chamomile flowers or witch-hazel, or a dilution of phenol, effectual. After every abortion, it cannot be too strongly insisted on, the confinement of the patient to bed for ten days or more, and every symptom promptly met with proper treatment. If the patient continues weakly, the use of cinchona, sulphate hydrastin, wine bitters, should be resorted to, as well as generous diet and pure air.

### PUERPERAL FEVER.

Puerperal peritonitis is that aggravated form of the affection that we meet with in females after confinement, known as puerperal fever. It differs from ordinary peritonitis in the suddenness and violence of the attack, and having a tendency to run its course with great rapidity. It occasionally rages as an epidemic, and is by far the most terrible disease, and perhaps the most fatal that a parturient female can be exposed to. Among the first symptoms of this terrible malady are, pain and tenderness in the hypogastric region, occurring soon after delivery, and succeeded by a chill, &c. The lochia is generally entirely suppressed. The secretion of milk is also either partially or entirely suppressed; and, if the secretion has not taken place, it does not occur at all. In the largest proportion of cases, the brain becomes implicated early, and this demands special attention.

Puerperal fever should never be classified with peritonitis, as this undoubtedly depends on epidemic influences. If it occurs as a sporadic affection, it is generally mild, recovery being the rule, and, when epidemic, is a violent contagious affection.

The attack takes place from four to ten days after labor. It is usually ushered in with a chill of greater or less intensity, from a violent rigor to mere chilliness. This chilly feeling is a prominent symptom all through the case, which is apt to mislead and give it the character of periodicity. There is usually an arrest of secretion rapidly taking place; skin dry, hot, and, if the patient is weakly or strumous, it may be pouring out an abundant perspiration; tongue at first coated with a white fur, afterwards it takes on a darker layer, chapped, dry, like a piece of leather; the urine almost suppressed, and what is passed resembling porter in appearance; extreme thirst, sallow skin, pinched, anxious expression of the countenance, anorexia. The pulse is rapid, ranging from one hundred and twenty to two hundred, but soft and compressible at first, then wiry. The nerve-centres are seriously affected, the patient is wakeful, apprehensive, desponding. Any little sleep is disturbed, she talks and starts, the



tendons twitch, delirium, muttering and groaning, and the muscles of the face are often distorted. The lochia and milk cease; if there is any lochia at all, it is very fetid, offensive, putrefactive, and so acrid, in most cases, as to excoriate the parts over which it flows. The duration of puerperal fever is uncertain.

*Diagnosis.*—This is not difficult; all the symptoms of peritonitis, suppression of the lochia, arrest of secretion of milk.

*Prognosis.*—This will depend almost wholly on the general epidemic and constitution of the patient, but, though it does prevail epidemically, sometimes it is mild, but when the treatment is correct, the prognosis is not unfavorable.

*Cause.*—From the offensive character of the lochial discharge, there can be little doubt but that it is almost invariably the product of decomposition. In some instances, traceable to retention of pieces of placenta or membranes, until decomposition takes place. From inefficient uterine contractions, accumulations of blood in the uterus may result, and remain until they become putrid, and thus furnish material for absorption and poison. When it prevails as an epidemic, there is some atmospheric cause operating upon the community, rendering the exciting cause efficient and operative.

*Treatment.*—The treatment should be eliminative, supporting and alterative. We must not only arrest the process of poisoning and support the system, but, thorough elimination should be the rule. The remedies must enter the blood, and influence elimination, neutralization, or destruction of the poison in that fluid. The first thing that presents itself for correction, is the condition of the genital canal. The uterus and vagina should be kept as clean as possible, and no substance allowed to remain that will cause or undergo decomposition. For this end, copious vaginal injections; first of soap-suds, and afterwards, of permanganate of potash. Place the patient on a bedpan, and inject a quart of the alkaline solution, then a quart of the potash, of a strength of twenty grains to the quart. Repeat this every five hours. We might also throw injections of water into the uterus repeatedly. Then, to assist elimination, an action on the bowels and skin is pre-eminently called for; if there is even a diarrhoea, it should not be too suddenly arrested. Podophyllin, leptandrin and irisin, are especially demanded; they might be given in the neutralizing mixture; as a diaphoretic, either the C. powder of lobelia, or the C. tinct. of serpentaria, given in suitable doses, to keep up perspiration. The skin should be sponged every three hours with a strong alkaline wash, and, after that, sponge again, either with a solution of nitro-muriatic or hydrochloric acid.

While this treatment is being carried rigidly on, a special class of remedies should be given to overcome or neutralize the poison, and prevent metamorphosis.

*Permanganate of potash* is valuable, on account of the large amount of oxygen it contains, and its peculiar property of vitalizing the blood.

The sulphites of soda and lime will also neutralize the poison circu-

lating in the blood, or the sulphate of lime. These remedies should be given in  $\mathfrak{z}$ i doses, every four hours. They are very beneficial.

The next remedy equal to the above is, chlorine, chlorine-water, chlorinated tincture iron. This preparation of iron should be given in alternation with some of the above remedies, for a tonic and antiseptic. If there is great depression, sulphate of quinine and hydrastin are excellent tonics, where prostration threatens.

As a local application to the abdomen, warm poultices of stramonium is my favorite application; but, if the case is severe, I have derived great benefit from the following: bathe all the abdomen with caustic ammonia, for five minutes, freely; then apply the emplastrum cantharides from the ensiform cartilage to the pubes, reaching well round to the loins; keep on for twenty-four hours; then the stramonium poultice. If stramonium-leaves are not at hand, take sufficient of the extract, and add to the elm poultice.

The food of the patient should be milk punch, or beef essence, or animal broths.

If the patient passes sleepless nights, give large doses of hyosciamus, and if it does not act alone, combine with the bromide of ammonia, in two-grain doses, or bromide potass, in twenty-grain doses. If the patient is very nervous, give cypripedin or valerianate of ammonia.

A powerful antiseptic should be exposed in the apartment; either bromide or permanganate of potash is excellent.

*Aconite and belladonna* are specially indicated, if there are marked cerebral symptoms, if the disease has progressed, if the system has become weak and feeble, the pulse rapid, abdomen tympanitic, mouth and tongue parched, extremities cold, delirium.

*Saline diuretics*, if there is a tendency to dropsical effusions.

*Opium* is an important remedy; its action on the cerebro-spinal nervous system is to calm; or, rather, it renders the sensorium less impressible, and the system less liable to be exhausted by disease. Its action on the sympathetic and vaso-motor nerves is similar, as it relaxes contracted arteries, and admits a free transit of blood. It is, properly speaking, a tissue sedative, and, in the form of the C. tincture of serpentaria, is a good remedy in puerperal fever.

*Lobelia* is indicated at the beginning of treatment, on account of its peculiar properties on the nervous system. The best effects often attend its exhibition; give it with the sulphate of soda; and, as soon as it has acted, begin with the treatment hinted at above.

The terrible rapidity and overwhelming power of the disease requires promptness, energy and skill, to successfully combat it victoriously.

*Hygienic prophylactics* are indispensable; every hygienic measure should be resorted to; good ventilation, airy apartment, &c. The physician should avoid contact with the patient as much as possible, for fear of making himself the nucleus of contagion;—great care should be exercised in this respect.

## PUERPERAL CONVULSIONS.

One of the most dangerous and frightful maladies with which any puerperal female may be attacked, is convulsions. It mostly occurs during labor, though occasionally met with some time previous to delivery, and also after it.

Besides the true puerperal convulsions, there are other varieties, which may attack the parturient female, as the hysteric, apoplectic, epileptic, &c.

As regards the *hysterical*, they are easily diagnosed; the *apoplectic* almost always occur toward the termination of labor, and are caused by the pressure exerted upon the cerebral vessels during the contraction of the uterus; and, with regard to the *epileptic*, it is impossible, in most cases, to distinguish them, unless we are apprised of the fact.

True puerperal convulsions appear to partake both of the nature of epilepsy and apoplexy, and are considered by many as genuine apoplexy, with violent spasmodic paroxysms superadded, due to a great degree of nervous excitability.

The causes of puerperal convulsions are not well understood. Plethora, mental excitement, certain electrical conditions of the atmosphere, certain diseases of the brain, retention of urea, disease of the kidneys, excess of amniotic fluid, death of the child, irritation or distention of the bladder, indigestible food, rigidity of the os uteri, great mental excitement. It is most probable, however, that it is by reflex nervous irritation, reflexed from some organ, as the uterus, stomach, bladder, &c., transmitting the irritation to the spinal cord and brain.

There are two causes of puerperal convulsions, which are very distinct: one is a convulsion dependent on an irritable or excitable state of the nervous system; the other, on a fullness of the vessels of the brain, or, perhaps, a slight extravasation from its vessels. When puerperal convulsions arise from the latter cause, it is always preceded by some symptoms, which, if watched, will enable us to relieve, if relief is applied for; but if these symptoms are neglected, the other class of convulsions will follow. In a female disposed to this complaint, there is usually a great fullness in the head, giddiness in the advanced periods of pregnancy, and a sensation of weight when she stoops forwards, imperfect vision, and fancied atoms floating before her eyes. Symptoms denoting fullness of the vessels of the brain, and, if allowed to continue, may lead to extravasation or puerperal convulsions.

The cause, then, may be either *centric* or *eccentric*; in the *former*, pressure on the medulla oblongata, from congestion, effusion or morbid elements in the blood; in the *latter*, irritation of the incidental spinal nerves of the uterus and uterine passages, irritation of the nerves of the rectum, bladder, ovaries, kidneys and pneumogastric. All females are liable to attacks of this disease; yet those of a plethoric habit, with short neck, firm, unyielding tissues, and great muscular development; those whose feet and hands swell, and have a numbness in the limbs, who labor under partial or complete loss of sensation in the face or limbs; those who manifest all symptoms of congestion of the brain and symptoms of anemia.

PROPHYLAXIS.—If such an event be anticipated, it is well to keep the secretions regular by laxatives and mild diuretics, occasional bathings, frictions, warm clothing, well-regulated diet, thorough hygiene, moderate, regular exercise in the open air, with an avoidance of all mental anxiety. In addition, the exhibition of the C. syr. of partridgeberry, or C. syr. caulophyllin, or the C. high cranberry-pill, or the black cohosh, are all well calculated to meet the chief indications. If there is serous effusions, apiol, with some saline diuretic, answers well.

*Symptoms.*—The most violent form of puerperal convulsions may take place without premonitory notice, although, as a general rule, the following symptoms are present:

The incipient indications are, severe headache, giddiness, dazzling of the eyes, weight and constriction in the forehead, throbbing of the carotids, mental disturbance, ringing in the ears, pains in the region of the heart. If these and other symptoms are not relieved, they become aggravated. The face becomes flushed and swollen, the eyes fixed, pupils dilated, unconsciousness supervenes. The muscles become affected; the head is rotated by jerks; the limbs are violently acted on by spasmodic action; the lower jaw is spasmodically closed; the tongue involuntarily protrudes; the breathing is rapid, irregular and violent, and is accompanied with a violent hissing sound. The face is distorted by the spasmodic contractions, and becomes turgid and livid. Sometimes the muscles on one side of the body become affected.

After an indefinite period of time, varying from a few minutes to half an hour, the violence of the convulsive motions diminish, and gradually cease altogether; the features begin to appear more natural; the pulse becomes more normal, breathing more regular; consciousness slowly returns, and the patient awakens as if from a sleep. After a variable interval, the paroxysms return, and, after some intermission, gradually cease.

Consciousness does not return in all cases. Not unfrequently the patient may remain motionless, insensible, with a stertorous or hissing respiration, somewhat resembling asphyxia, and which may soon prove fatal. The duration of the convulsion does not usually exceed five or ten minutes, while the intervals may extend to as many hours. The paroxysms occur periodically, like labor-pains, and usually between them; and, whether there have been labor-pains or not, before they come on, we shall usually find the os uteri somewhat dilated, and it is sure to become more so, from the continuance of these convulsions.

In these convulsions, respiration is first affected with a hissing and catching; the patient then stretches herself, and immediately the struggle commences. After they have set in, she foams at the mouth, snores like an apoplectic patient, indicating great fullness about the brain. The understanding usually does not give way until the fits have been repeated several times. By the introduction of the hand into the uterus, when these convulsions come on, it has been ascertained that this organ is contracted, but with a tremulous, undetermined sort of force, perfectly different from what takes place at any other time.

If convulsions occur in the pregnant female, it is seldom that she



will complete her full term, and the child will be still-born; but, occasionally the spasm ceases spontaneously, without endangering pregnancy; but more frequently uterine contractions are aroused, and the child is expelled without the mother being conscious of it.

Like all other forms of convulsive disease, once the impress is established upon the great nerve centres, there is a continual persistent tendency to recurrence.

*Treatment.*—The indications of treatment in puerperal convulsions are, to subdue spasmodic action; to overcome cerebral congestion, and equalize the circulation; to hasten delivery, and prevent recurring attacks.

For subduing spasmodic action, the compound tincture of lobelia, or, what is perhaps better, Thompson's third preparation; either of these I regard as most excellent remedies, given in sufficient doses to produce relaxation; it must exert a positive influence upon the muscular system of the patient, rendering it powerless by the relaxing influence of the remedies; its action must be kept up by repeated doses. Gelsemin is a remedy too much neglected in the treatment of convulsive diseases; it produces most thorough relaxation; besides, it is a valuable anti-spasmodic. I have also used stramonium with decided advantage.

The inhalation of anæsthetics, and, at the same time, giving large doses of the tincture of veratrum, is attended with the best success. I have also tried hypodermic injections along the spine, and have found them of unsurpassed benefit.

To overcome the cerebral congestion, nothing seems to act so promptly as the veratrum, assisted by drastic injections of jalapin or lobelia, in tepid water, and, if these fail, croton oil rubbed up with pulverized mandrake, and given as a suppository, has a good cathartic effect, and very beneficial in obtaining copious evacuations from the bowels, and in relieving cerebral turgescence. At the same time, the limbs, from the extremities to the knee, should be bandaged with a roller, saturated with mustard and water of the consistence of cream; after this has done its work, then cloths, saturated with tincture of capsicum and stramonium, should be kept applied. The entire length of the spine should either be painted with tincture of iodine, or Ferri's method should be used, or dry cupping. To the abdomen, nothing exceeds the stramonium fomentation, kept constantly applied. A most important point in meeting this indication, and one which should never be neglected, is the application of cold to the head, irrigation, and the application of a freezing mixture to the cerebellum, perseveringly persisted in, until the action of the cerebral vessels becomes diminished, and their congested condition relieved. Hæmastasis might also be resorted to, by placing ligatures around the various extremities; a method that merits our warmest approbation. If effusion on the brain is considerable, the case is more hopeless. If the convulsions occur after delivery, it is well to be careful that the placenta is not retained; the condition of the bladder should also be attended to. One grain of morphia or gelsemin, in solution, as a subcutaneous injection, may be safely resorted to, if none of the other

methods are eligible; this, like opium, internally, does not stop the contractions of the uterus, but rather acts as an anæsthetic upon the brain; it is even better than large enemata of lobelia and capsicum into the intestines. The warm-bath is not a convenient agent in this disease. The pediluvium, or the application to the soles of the feet of bottles filled with warm water, is proper.

Various authorities suggest their own particular mode of applying cold to the head, for the purpose of relieving irritation, such as dipping feathers in cold water and dashing it, or the douche, throwing water on the patient's head, &c., &c.; but the best of all methods is, irrigation.

In all cases of puerperal convulsions, after having controlled them, or relieved the cause of them, we should uniformly exert our best endeavors to deliver, as expeditiously as we can, when practicable, without violence.

When we find the os uteri begins to relax and open, which may take place without any apparent labor-pains, we should introduce the hand slowly, dilate it, and deliver the child.

When convulsions continue after the uterus is emptied of its contents, all that we can then do is, to keep the brain unloaded, the bowels open by free purgation, and relieve the irritability of the system by large doses of veratrum, lobelia, musk, chloroform, &c. The application of dry cups over the nape of the neck, followed with the cantharidal collodion, sometimes would seem to tend to diminish the diseased action.

To prevent puerperal convulsions from supervening, as they are, in every instance, to be considered as highly dangerous, particularly at an advanced period of pregnancy, it will be prudent, in robust patients, to exhibit such remedies as veratrin, aconite, &c., taking care to keep all the secretions open by such remedies as podophyllin, leptandrin, &c., &c.

In women of an irritable constitution, all exciting causes should be carefully avoided, the habit strengthened as much as possible, and thereby rendered less susceptible of disagreeable or ready impressions.

To prevent an attack, the following will be found very efficient: Extract stramonium, twelve grains; morphia, two grains; sulphate of hydrastin, thirty grains. Mix, and divide into twelve doses.

Caulophyllin, musk and scutellarin, make an excellent combination; one grain of the two former to three of the latter at a dose. Aconite, quinine and gelsemin form an active prescription for their relief.

## PHLEGMASIA DOLENS.

There can be no doubt but that, in certain conditions of pregnancy, where, more especially, there exists an obstacle to the normal circulation, where the patient is of a loose, flabby habit; where there is a laxness of tissue; where this condition is aggravated, either by mental or physical privation, or inattention to hygiene, or partaking of certain

articles of food, they are very prone to have an excess of fibrin, which manifests itself by fibrinous formations in various parts of the circulating system. The formation of such conditions seem to be particularly favored by the condition of the blood during pregnancy and the puerperal state.

I have frequently met with cases where this fibrinous deposit formed in the heart, and gave rise to the most alarming and fatal symptoms.

There can be little doubt but what phlegmasia dolens is due to this condition—a condition known as embolia; a fibrinous, coagulated condition of the blood, so that the terms *phlegmasia dolens*; *oedema lacteum*; *crural phlebitis*; *white or milk leg*, &c., have no meaning to a scientific mind.

In phlegmasia dolens we have a brawny, non-œdematous, painful swelling of one or both lower extremities, attended with prostration, depending on a fibrinous condition of the blood, which tends to rapid spontaneous coagulation of blood within the femoral veins—and this fibrinized or coagulated condition of the blood is due to some poisonous or cachectic state of the system; the whole blood and lymphatics are involved. The left leg is more frequently.

*Symptoms.*—Commences in from one to six weeks after labor. Fever; headache; thirst; nausea; pain; sometimes chills and rigors. Swelling and loss of motor power in the affected extremity. Limb unnaturally hot; tender; non-œdematous, but swollen, often twice its natural size; of a pale, white color, tense and elastic; having a glazed or shining appearance; and, even after the avoidance of acute symptoms, the limb often remains enlarged for many weeks.

*Treatment.*—Whatever may be the peculiar characteristics of the case, they should be specially attended to—every pressing or prominent symptom relieved; then special treatment to overcome the fibrinous condition of the blood. It has been clearly demonstrated that alkalies lead to the solution of nitrogenous tissue; all alkalies, then, produce fluidity of the blood—a dissolution of the blood corpuscles. The best remedy for this purpose is the sesqui-carbonate of ammonia. This agent, well diluted, has a specific action on the blood, has a wholesome, invigorating action on the heart and circulation, as well as on the walls of the blood-vessels. But, if this form of ammonia is contra-indicated, the carbonate of ammonia, chlorate of potassa, sulphite of soda, iodide potass. These remedies, one or the other of them, should be perseveringly given, in alternation with hamamelis, cinchona, and hydrastin.

The use of the mineral acids is contra-indicated.

The diet should be essence of beef, white of egg, milk, &c. Perfect rest should be strictly enjoined.

The local treatment will consist of friction, with stimulating liniments, electricity, shampooing, &c., which should be resorted to every two or three hours, and then a roller wet with a solution of Pond's extract hamamelis,  $\mathfrak{z}$ ii, to aqua, Oss.—*M.*; the bandage applied firm at the extremity, and easier as you progress upwards—to be kept

constantly applied. Convalescence, with this treatment, is usually rapid; but tonics and alkalies should be continued for months.

In the *chronic* stage, pretty much the same treatment; but, here, the iodide of potass in an infusion of bark or hydrastis; or ammonia and bark; and these given with some preparation of phosphorus.

The local treatment will consist of stimulating liniments, frictions, shampooing and bandaging. Here the use of nourishing diet is still more necessary.

If the patient is plethoric, a more active course of treatment may be pursued—decided alteratives are peculiarly indicated, irisin, chloride of gold and platinum, may be freely given.

## ORTHOPEDICS.

This term is used to signify the correction of deformities at all ages. Prevention is more important than correction; for the impossibility of correcting many deformities, which could have been easily prevented, is an important item to the physician.

**CLUB-FOOT.**—(*Talipes*.)—This is a peculiar deformity of the foot, produced by contraction of the muscles of the leg, malposition or malformation of the foot, congenital or acquired, in which, from some deviation of the ankle-joint, the sole of the foot fails to apply to the ground in the natural position. There are numerous varieties, as—*talipes equinus, dorsalis, varus, vulgus, plantaris, calcaneous*.

**TALIPES EQUINUS** is the term applied to that position, which, by long-continued voluntary elevation of the heel, to compensate for shortening of the limb, becomes not only habitual, but fixed by the permanent shortening of the triceps extensor pedis, and the adaptation of the ligaments to the habitual relations of the bones of the leg and tarsus. In the most simple variety, the heel is merely raised, so that the patient walks upon the ball of the foot, as in *fig. 90*.



Fig. 90.—*Talipes Equinus*.



Fig. 91.—*Talipes Varus*.



In the *talipes varus*, (Fig. 91,) which is most common, the distortion is more complex; the heel is slightly raised, the inner edge of the foot is drawn upwards, and the whole foot is twisted inwards, so that the patient walks on the outer edge, and, in confirmed cases, on the dorsum of the foot and outer ankle.

*Causes.*—This affection consists, essentially, in a state of shortening and rigidity of the muscles of the leg and foot. The exciting causes are, anything that interferes with the supply of nervous influence, or with the proper nutrition of the muscles. It may be a consequence of fevers, injuries of the spine, of division of the sciatic nerve, of long confinement, inactivity, rheumatism, sympathetic causes; but its most frequent cause is congenital, produced through uterine life, through enervation and atrophy.

*Treatment.*—Club-foot, in all its varieties, is generally a congenital disease, and the treatment should be commenced at birth, to control the foot and bring each part into proper position.

Various contrivances and apparatus may be used. A very simple contrivance is the following: A small splint and foot-piece may be adjusted with adhesive strips to the foot, a small pad placed over the ankle-joint, beneath the splint, which should have a hole in the upper end, to tie the ends of another adhesive strip through, the broad surface of which should pass around the calf of the leg, and be tightened at pleasure. Then place a strip of adhesive plaster, so that the ends shall adhere to opposite sides of the thigh, from the groin, and let the even loop pass a little below the knee. Wind another strip behind the ankle, over the top of the foot and under the foot-piece, so that, when it is brought up and tied in the loop of the thigh-strap, it will hold the foot in proper position. By a little attention to the proper angle of the splint and foot-board, and tightening the two strips spoken of as they require, the deformity of the bones can be prevented in a great measure. If the above mode of treatment is resorted to, the dressings should be changed about once a week, or as often as the straps become loose. Care should be taken to have the strips as wide as possible, and not to bring any part so tight as to interfere with the circulation.

If the above fail, or if the case is so aggravated, that it would be useless, then subcutaneous division of all the tendons that offer the least resistance should at once be resorted to. The rationale of this operation may be easily comprehended. All the resisting tendons being divided, heals by a callus, which renders it longer, and which, while recent, may be stretched to any desired length. Thus, the mechanical shortening of the muscle is neutralized. At the same time, the antagonistic muscles, which are always wasted and inert, are relieved from the constant state of tension, and are enabled to resume their natural functions, so that the limb rapidly increases in strength and bulk. The operation is a simple one and easily performed.

*Put the tendon thoroughly on the stretch; and then a narrow sharp-pointed knife is thrust through the skin on the one side of it; then its edge is turned against the tendon, and made to divide it as it is with.*

*drawn.* Any tendon or fascia that offers the least resistance should be divided as well, because, if the deformity exists later in life, efforts to correct it by surgical means are not so successful. The bones, the older the child is, become more unyielding, adapted to the deformity, and more firmly bound down by ligamentous bands in their abnormal condition.

The treatment, in all cases, should be commenced in the earliest stage of infancy in an effort to control the wayward muscles, and restore the irregularity of the articulations at the earliest possible moment, while the tendons are flexible, and the bones and cartilages soft and yielding, apply some apparatus, as the following: *Fig. 92*, an excellent one by Kolbe—light and most effectual, and *Fig. 93*, a substantial one by Gemrig.



Fig. 92.

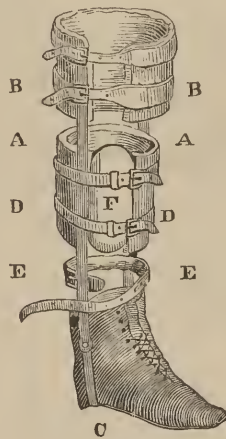


Fig. 93.

The principle on which subcutaneous tenotomy is resorted to, is simple. The cut surfaces of the tendons heal by connective tissue, which lengthens the tendon, and admits of considerable extension while recent. But, in all cases, where it is possible, a cure should be obtained without operation; by removal of all sources of irritation; fomentations and frictions of rigid muscles; tonics, good food, salt-water bathing, and the proper applications of splints, adhesive strips, and mechanical support.

**WEAK ANKLES.**—In this affection the foot is flattened, its arch is sunk, and the astragalus forms a projection below the internal malleolus, rendering the internal border of the foot convex instead of concave. In bad cases the inner ankle almost touches the ground, and the patient walks with a great degree of lameness. This affection depends on a weakness and relaxation of the bones and ligaments.

The cause is usually weakness of organization.

The treatment will consist in wearing appropriate shoes, a bandage, splints of gutta serena, &c., daily friction with stimulating liniments, shampooing, electricity, salt-water baths, &c., mechanical support, as in Fig. 94.

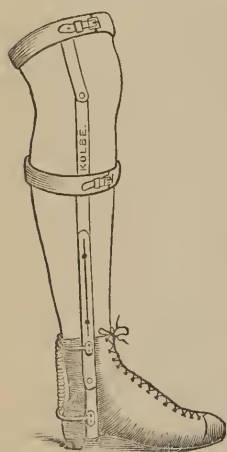


Fig. 94.

DEVIATIONS AT THE KNEE-JOINT are not uncommon; a congenital deformity known as *knock-knees*, which depends upon a defect of the lateral ligaments of the knee-joint, requiring sometimes the division of the external lateral ligament, or its elongation by mechanical force, perseveringly applied, aided by frictions, shampooing and nerve tonics.

Excellent apparatus, by Kolbe, for overcoming this difficulty, (Figs. 95, 96, 97, 98.) The application of this form of mechanical support is usually efficient.

BOW-LEGS.—A deviation in the opposite direction; sometimes depending upon the elongation of the external lateral ligament and associated tendons; sometimes upon curvature of the bones, from premature walking or softening of the bones. This requires a similar mode of treatment by splints, (Figs. 99, 100,) mechanical support, and the remedies recommended

under *mollities ossium*.

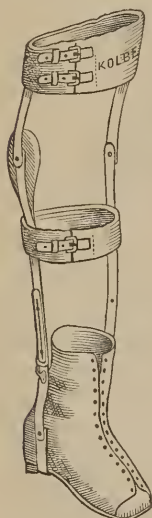


Fig. 95.



Fig. 96.

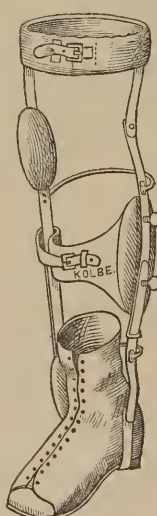


Fig. 97.



Fig. 98.

CONTRACTION OF THE TOES AND FINGERS.—These cases are frequently met with, usually depending upon shortening and rigidity of

the tendons or their shields, or on a ligamentous degeneration of the cellular tissue.

*In the treatment*, friction and shampooing with stimulating liniments, electricity, and the general treatment of ankylosis.

**WEBBED FINGERS.**—This deformity consists in the union of the fingers to each other; it may be congenital, or caused by burns. It is a most stubborn affection to treat. The best mode of treatment, and one which is invariably successful, is to perforate the connecting skin to about half an inch near the roots of the fingers, and pushing through the aperture a piece of lead ribbon, keeping it wrapped round the finger till the edges have healed, and the remainder of the connection may be severed.

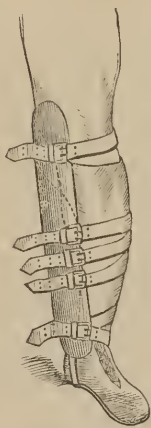


Fig. 99.

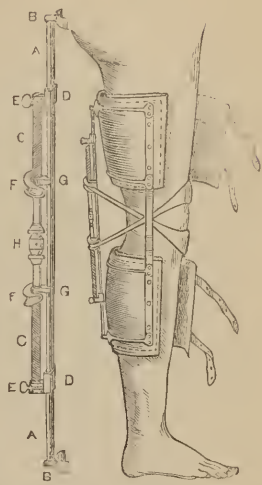


Fig. 100.

**ULCERS ABOUT THE NAILS.**—These are very troublesome and intractable. Any inflammation that may occur should be removed; the nail well softened in tepid alkaline wash, then shave it in the centre with a bit of glass; continue this every night, and, if there is much pain, apply morphia to the part. The application of a saturated solution of permanganate of potash is the best local application. The shoes should be easy.

**WHITLOW, or PARONYCHIA**, is met with under three varieties; the *cutaneous*, *subcutaneous*, and *tendinous*. The cutaneous whitlow consists of inflammation of the surface of the skin of the last phalanx of the finger, with burning pain and effusion of serum, or a bloody fluid which elevates the cuticle into a bladder. The subcutaneous is attended with great pain and throbbing, and suppuration under the skin, at the root of the nail.

The tendinous affects the deeper-seated tissues.

If revulsive measures fail, as the local application of almost boiling water—a blister, or veratrum, or saturated with tincture of lobelia; then freely open.



## AMPUTATIONS.

Amputations are performed through the shafts of bones, or through the joints; the former are said to be *in the continuity*, and the latter, *in the contiguity*.

AMPUTATIONS IN THE CONTINUITY.—There are several methods of shaping the external parts to cover the stump in this operation:—

*Circular method.*—There are three principal steps in this operation, viz:—1. Incision of the skin; 2. Incision of the muscles; 3. Section of the bone. To incise the skin easily and neatly, the operator should stand upon the right side of the limb, the left foot thrown forward and placed firmly upon the floor, the right knee bending sufficiently to give freedom of motion to the body; the left hand grasps the limb above the point of operation, and the handle of the knife is taken between the thumb and fore-finger of the right hand, being lightly supported by the other fingers; stooping sufficiently to allow the right arm to encircle the limb readily, he carries the knife around until the blade is nearly perpendicular to the long axis of the limb, on the side next to him, with the point downwards, and the hand of the operator above the limb; he now commences the incision with the heel of the knife, giving slightly sawing motions, and brings the hand under the limb, and then directly upwards upon the side next to the operator, until the heel touches the point of commencement; the handle of the knife, held thus delicately, will change its relative positions as it passes around the limb, without the slightest embarrassment to the operator; if the handle is firmly grasped in the whole hand, the incision cannot be completed without the aid of the other hand, or an awkward movement of the hand holding the knife; the ease with which the incision is made will depend much upon whether it commences well down upon the side of the limb next to the operator. The skin is raised from the first layer of muscles by dissection, and drawn upwards (*Fig. 101*) two or

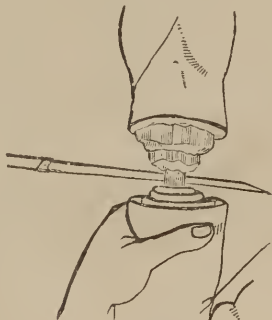


Fig. 102.



Fig. 101.

three inches, according to the diameter of the limb, like the cuff of a coat. The first layer of muscles is divided at the margin of the retracted integument, in the same manner as the incision of the skin is executed; this layer is raised with the knife, and drawn still further upwards; and the last layer of muscles is divided (*Fig. 102*) down to

the bone by the same sweep of the knife, as before given. The bone is then sawn at the apex of the cone.

**FLAPS.**—Flaps may be anterior, posterior, or lateral; they may be made from without inwards, or from within outwards.

**SINGLE FLAPS.**—The operator grasps the tissues on the anterior part of the limb with the left hand, above the point of operation, and, placing the heel of the knife at the point of the fingers on the opposite side of the limb, with a slight downward curve, he brings it over to the point of the thumb on the opposite side, with one stroke dividing the tissues to the bone; he now withdraws the knife until the point rests in the angle of the wound, when he thrusts it under the bone, taking care that the point emerges at the angle of the wound on the opposite side where the incision commences; he now makes a flap from the posterior part of the limb of sufficient length to cover the stump; the muscles are dissected from the bone with the amputating knife or a scalpel; the operation is very rapid, the knife not being raised from the limb. Illustrations 103, 104, 105, 106, exhibit different modifications of the double flaps.

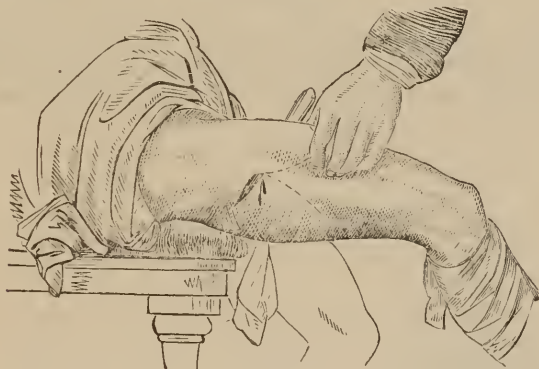


Fig. 103.

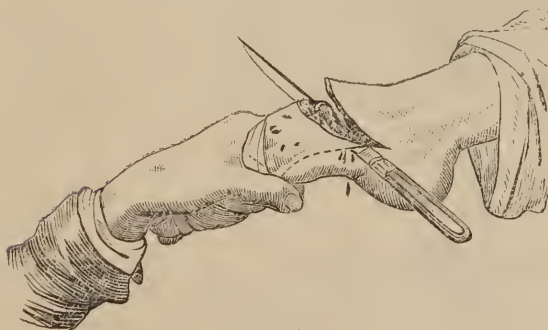


Fig. 104.

**DOUBLE FLAPS.**—The operator grasps the tissues on the upper part of the limb with the left hand, the thumb and fingers resting at the middle of the limb on opposite sides; the knife is then entered (*Figs.* 103, 104, 105, 106) at the thumb, and thrust through above the bone,

emerging on the opposite side at the point where the fingers rest, and passed downwards and outwards, making an anterior flap of the required length; it is again re-entered at the same point, and, passing

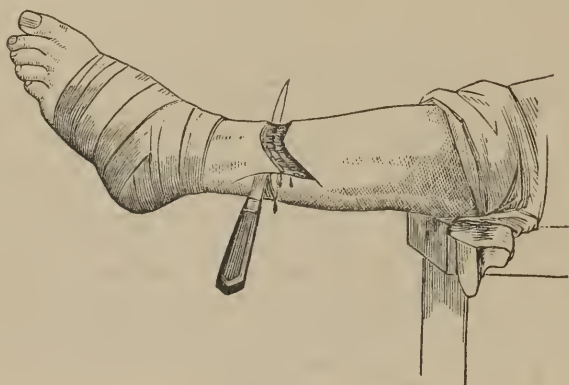


Fig. 105.

beneath the bone, emerges from the same point on the opposite side, and a flap is made from the posterior part of the limb; both flaps are forcibly retracted, the muscles dissected from the bone, and the bone divided.

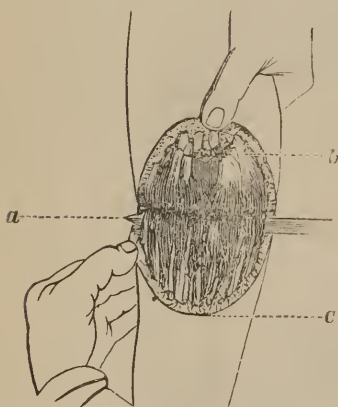


Fig. 106.



Fig. 107.



Fig. 108.

**RECTANGULAR FLAPS.**—(*Figs. 107, 108.*)—First mark on the limb with ink, two flaps; the size of the long flap is determined by the circumference of the limb at the place of amputation, its length and its width being each equal to half the circumference. The long flap is, therefore, a perfect square, and is long enough to pull easily over the end of the bone. In selecting the structure for its formation, such parts must be taken as do not contain the larger blood-vessels and nerves. The flap thus formed, will be, for the most part, anterior

in position, as far as regards the general aspect of the body, but superior when the patient is in the recumbent posture, as during the after-treatment. The short flap, containing the chief vessels and veins, is, in length, one-fourth of the other. The flaps being formed, the bone sawed, and the arteries tied, the long flap is folded over the end of the bone; each of its free angles is then fixed by suture to the corresponding free angles of the short flap. One or two more sutures complete the transverse line of union of the flaps. At each side the short flap is united to the corresponding portion of the long one, as in Fig. 109, by a point of suture, and one suture more unites the reflected portion of the long flap to its unreflected portion. Thus, the transverse line of union is bounded at each end by a short lateral line at right angles to it.

OVAL METHOD.—In this operation, the incision may be made like an inverted V, (*Fig. 110,*) the apex being a little below the point



Fig. 110.

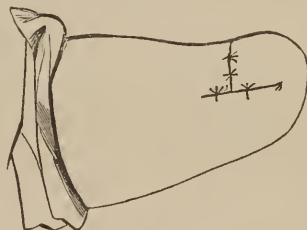


Fig. 109.

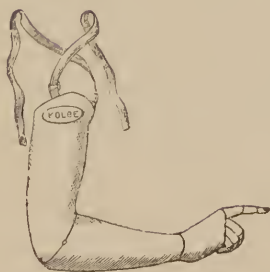


Fig. 111.

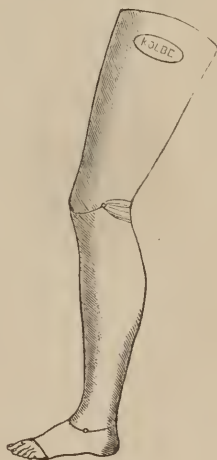


Fig. 112.

where the bone is to be sawed; the incision being extended quite down to the bone before the lower portion of the flap containing the large vessels is divided; or a perfect oval may be marked out by the first incision, and the operation completed as in the former case. The oval method is seldom adopted, except in amputation at the joints.



SUBSTITUTE FOR THE NATURAL LIMB.—After the healing of a stump, it is the duty of the surgeon to direct and instruct the patient to some useful substitute for the portion which has been removed. It is hoped that every true, philanthropic physician, will abstain from recommending articles of inferior utility, or one patented by individuals who have no anatomical knowledge. Artificial limbs, made by Kolbe, South Ninth Street, Philadelphia, are so perfect, that the patient can grasp his hat, hold a pen or other light articles. *Fig. 111*, shows an excellent one made by Kolbe. *Fig. 112*, an artificial leg by the same maker; they are light, neat, possess every movement, are cheap and most substantial.

As a general rule, a stump will not be able to sustain an artificial limb for about twelve weeks after healing, even though the stump has been nightly bathed with decoction of oak-bark, or a solution of the extract of hamamelis. If it gives rise to irritation, its use must be suspended until it subsides.

## APPENDIX.

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### OBSERVATIONS ON DIAGNOSIS.

In forming a diagnosis, the patient should undergo a rigid and careful examination. This should always be conducted by rule. *The circulatory system—the heart—should be minutely scanned; then the respiratory system; then the nervous system; then the digestive system; then the genito-urinary system.* A vast amount of valuable information, with reference to any particular disease, can be obtained by *palpation, mensuration, percussion, auscultation, temperature of the body, chemical analysis of the urine, &c., &c.*

**PALPATION.**—This is a necessary mode of examination, and is sometimes practiced by simply applying the tips of the fingers; at others, by placing the hand on the affected part, or by pressing with both hands, or using them alternately. The position of the patient, during an examination, must be varied according to the parts examined; but, as a general rule, the horizontal position is the best.

In examining the abdomen, flex the lower extremities well on the abdomen, and bend the head and neck well forward; then palpation will give us the following information: increased or diminished sensibility of parts; their form, size, density, elasticity, &c.

If pain is experienced in any part, and it is increased by pressure, we regard it as inflammatory; but, if relieved, neuralgic.

In paralytic cases, the domination of sensibility can be ascertained by feeling the part; and the limitation of anæsthesia is arrived at by pricking the surface with some pointed, hard substance.

Alterations in external form and size may be judged of by inspection; but in internal organs, especially abdominal ones, we derive information from palpation conjoined with percussion, as in cases of hypertrophied liver and spleen, or the existence of a tumor. In such cases, we can feel from the increased density and outline of the morbid growths, which will be more or less distinct in proportion as they are near the surface and circumscribed in form. Sometimes organs cannot be felt in their normal positions, and are diminished in size, as when the inferior margin of the liver cannot be detected in this way, from atrophy. The natural elasticity of parts may also be increased or diminished. Certain motions in the thoracic and abdominal cavities, as well as in other parts of the body, are best judged of by palpation. The character and situation of pulsation at the heart, root of the neck, or elsewhere, are determined in this way. The expansive motion of the thorax and abdomen, during respiration, is also thus ascertained. If we place the two hands, with the fingers spread out, in the axilla or flanks, and bring the two thumbs towards each other, near the sternum and umbilicus, we can judge, by their approach and separa-

tion, of the amount of expansion or retraction that takes place. Application of the hand also allows us to detect undulatory motions below the integument, and to determine the existence of vibrations, frictions, crepitations and gratings.

**MENSURATION.**—The simplest way of measuring the distance between any two fixed points is, by means of a graduated tape. In ascertaining the circular measurements of the chest or abdomen, the moment should be chosen when the patient holds his breath, at the end of an ordinary expiration, care being taken that the tape is evenly carried around the body. The relative mensuration of the two sides of the chest or abdomen is accomplished by choosing the spinous processes of the vertebræ as fixed points, on one hand, and a line drawn through the centre of the sternum and umbilicus, on the other. The exact levels of the measurements should always be noted, such as at the nipples, margin of the lower ribs or umbilicus. The diameter of the trunk, in various directions, is best ascertained by means of a pair of callipers.

We are capable of accurately determining, by means of the chest-measurer, the amount of motion in the chest and abdomen, and of its various parts.

In different persons, there is, however, considerable variation, even in health. Some, for instance, can cause the second rib to advance two and a quarter inches during forced inspiration, whilst others can only cause it to advance three quarters of an inch. The motion of the whole left side, excepting that of the second rib, is less than that on the right side. It should be remembered that the motion of the tenth rib indicates that of the diaphragm. In the female, the pressure of the stays exaggerates the thoracic and diminishes the abdominal movements. By the spirometer, the expansibility of the lungs and the amount of air expelled from the chest, after full inspiration, may also be measured.

**PERCUSSION.**—Before proceeding to percuss individual organs, in persons laboring under disease, you should obtain a general knowledge of the limits and intensity of dullness, by percussing the thoracic and abdominal viscera in health.

**LUNGS.**—Percussion of the lungs generally bears reference to a change in density, which is only to be detected by comparing the healthy with the morbid portions. The rule here to be followed is, to apply the spread fingers with the same firmness, and in the same situation, to each side of the chest in succession, and let the blow be given with an equal force. Care must be taken that the position of both arms be alike, as the contracting of the pectoral muscles, on one side more than the other, may induce error. When circumscribed alterations are discovered in the pulmonary tissue, their limits may be marked out on the surface of the skin.

**HEART.**—The first difficult lesson in the art of percussion is, to mark out the precise limits of the heart. In different persons, the normal size of the heart differs. It may be considered that, if the transverse diameter of the dullness measures more than two inches, it is abnormally enlarged. It has been known to measure more than seven inches. In hydropericardium, the dullness has been remarked to

exist rather at the superior part of the sternum than on one side or the other. In pericarditis, it bulges out inferiorly. In hypertrophy and dilatation of the right auricle, the increased extent of the dullness stretches towards the medium line, and sometimes passes over it. In similar hypertrophy of the left ventricle, the dullness extends on the left side, more or less, according to the increased size of the heart. In concentric hypertrophy, there is little or no enlargement, but the density is greatly increased.

**LIVER.**—The superior limit of this organ is generally found about two inches below the right nipple. Its inferior border descends to the lower margin of the ribs. The extent of the jecoral dullness, in the healthy state, is generally two inches on the left side, three inches in the hepatic region, anteriorly, and four inches in the hepatic region laterally.

Variations in the size of the liver, from congestion, inflammation, abscesses, hydatids, tumors, atrophy, &c., may often be determined by means of percussion. In icterus, the increase and diminution of this organ will generally be found to bear a proportion to the intensity of organic disease. The inferior border often presents an irregular form, when tumors are present. If the inferior lobes of the lung be indurated by tubercles, it becomes difficult to draw the limit between them and the liver. When fluid effusion exists in the pleura, the increased density of the liver may still serve to distinguish it, and, by changing the position of the patient, its upper edge, in the majority of cases, may be limited. In cases of ascites, we must lay the patient on the left side, in order to measure the right lobe—on the right side, to measure the left lobe, and on the abdomen, to percuss it posteriorly.

**SPLEEN.**—In percussing the spleen, it is necessary that the patient lie on the right side; the examination should be made before, rather than after meals.

Anteriorly, the sonoriety of the stomach and intestines causes the margin readily to be distinguished. Posteriorly, where the organ approaches towards the kidneys, this is more difficult. Its superior and inferior margins may be made out by striking the hand with some force. This organ offers great resistance to percussion.

In health, the spleen never projects below the false ribs, even during a deep inspiration. Its general size is about four inches long and three inches wide. In diseased states it may be enlarged. A pleuritic effusion, ascites, pneumonia, or tubercular deposition in the inferior lobe of the left lung, may render a limitation of this organ difficult. We may infer that its dimensions are small, if the dullness cannot be detected.

**STOMACH AND INTESTINES.**—The sounds elicited by percussion of the stomach and intestines are of the greatest service to the practitioner:

1st.—As furnishing him with the means of determining the form of other organs, as the liver, spleen, or bladder.

2d.—As enabling him to distinguish the presence or absence of fecal or alimentary matter.

3d.—As the means of diagnosing abdominal tumors. Hence, every physician should be able at once to recognize the difference between the tones furnished by the stomach, small and large intestines, under various circumstance.



**KIDNEYS.**—The patient should lie on the abdomen and chest, to percuss the kidneys; a position which allows any ascitic fluid that may be present to gravitate downwards, whilst the intestines float upwards. Under such circumstances, the dullness and resistance offered by the renal organs are determined.

In consequence of the loud tympanitic note of the intestines, their external margins may, for the most part, be easily limited. Internally, the dullness merges into that of the spinal column. Enlargement of one or both of these organs from calculous, or serofulous nephritis, pyelitis, or other diseases, may in this manner be made out as seen on the left side. Atrophy of these organs is more difficult to determine with exactitude, but may be demonstrated by careful percussion.

**BLADDER.**—This viscus, when it is more or less distended, and rises above the pubes, is only to be detected by percussion. It may then be distinguished, and its circular margin limited, by observing the tympanitic sound of the intestines, on the one hand, and the dull sound furnished by the bladder, with increased resistance, on the other. It will be necessary to press down the hand with tolerable firmness, when covered by intestines. In the infant, the situation of the bladder is not so deep in the pelvis, and a small quantity of fluid renders it cognizable by means of percussion.

**AUSCULTATION.**—The object of auscultation is, to ascertain and appreciate the nature of the various sounds which occur in the interior of the body. It has been found most useful when applied to the pulmonary and circulatory organs.

*Alterations of the natural sounds.*—All the sounds which can be heard in the lungs during health, may, in certain diseased conditions, be increased, diminished, or absent; their character or position may be changed; and, with regard to the respiratory murmurs, they may present alterations in rhythm or duration with respect to each other.

*Alterations in intensity.*—Some persons have louder respiratory murmurs than others; if this occur uniformly on both sides, it is a healthy condition. Sometimes, however, the sounds are stronger at one place, or on one side, and then they generally indicate increased action of the lung, supplementary to diminished action in some other part. In the same manner, there may be feeble respiration from diminished action, as in feeble or old persons; but it may also be occasioned by pleurodynia, obstructions in the larynx, trachea, or bronchia—pleurisy, or pulmonary emphysema, or exudations filling up a greater or less number of the air-cells and smaller tubes, as in pneumonia, phthisis, &c. Complete absence of respiration occurs where there is extensive pleuritic effusion or hydrothorax.

*Alterations of character.*—The various respiratory murmurs may, in certain conditions of the lung, assume a peculiar harshness, which is a valuable sign to the ear of the auscultator, indicative of altered texture. Thus, in incipient phthisis, the vesicular murmur under the clavicle is often harsh. The bronchial respiratory murmur, in pneumonia, presents a similar character. It becomes cavernous when a cavity is formed; and, in certain cases of pneumothorax with pulmonary fistula, it assumes an amphoric character.

*Alterations in position.*—It frequently happens that the sounds

which are natural to certain parts of the chest, are heard distinctly at places where, in health, they are never detected. In pneumonia, bronchial, or tubular breathing, may be evident, where only a vesicular murmur ought to exist.

*Alterations of rhythm.*—In health the inspiration is usually three times as long as the expiration. In certain diseased conditions, this relation is altered. In incipient phthisis we often find the expiration prolonged. In chronic bronchitis and emphysema it is three or four times longer than the inspiration.

*New or abnormal sounds.*—These are of three kinds: *rubbing* or *friction sounds*; *moist rattles*; and *vibrating murmurs*.

*Rubbing or friction sounds* are caused in the pulmonary apparatus by some morbid change in the pleural; instead of sliding noiselessly on one another, they emit a rubbing sound. If covered with a softened, thin exudation, the murmur will be soft; if it be tougher and thicker, the sound will be louder; if hard, dense and rough, it will assume a harsh character. These noises are heard in the various forms of pleurisy.

*Moist rattles* are produced by bubbles of air traversing or breaking in a somewhat viscus fluid. This may occur in the bronchi, mucus or pus, or in ulcers of various size. They may be very fine or very coarse. We may have every kind of gradation between these two extremes. It is important to determine whether or not the sound be moist, and you will recognize that the rattles are coarse or large, in proportion to the size of the tubes, and the amount of fluid present. These rattles may be heard in pneumonia, phthisis pulmonalis, bronchitis, &c., &c.

*Dry, vibrating murmurs* arise when the air-tubes are obstructed, constricted, or lose their elasticity and become enlarged, whereby the vibrations, into which they are thrown by the column of air, produce sounds of an abnormal character. Murmurs may be occasioned of a fine squeaking, or of a hoarse, snoring character, and, between the two, there may be several kinds of variations. They are heard in cases of bronchitis and emphysema.

The *vocal resonance* may give rise to abnormal sounds. It sometimes presents a soft, reverberating noise. Sometimes the resonance gives rise to a metallic tinkling. This is often best heard immediately after a cough in certain cases of chronic phthisis.

That the different sounds are only indicative of certain physical conditions of the lung, and bear in themselves no fixed relation to the so-called disease of systematic writers.

No single acoustic sign, or combination of signs, is pathognomonic of any certain pathological state; and there is no pathological state which is accompanied by any series of physical signs.

Auscultation is only one of the means by which we can arrive at a just diagnosis, and should never be depended on alone.

*Pericardial or friction murmurs.*—These murmurs are the same in character, and originate from the same causes, as the friction noises connected with the pulmonary organs. It is necessary to observe that they are sometimes so soft as closely to resemble blowing murmurs,

from which they are to be distinguished by their superficial character and limited extent.

*Valvular or vibrating murmurs.*—These murmurs vary greatly in character; some being very soft; others like the blowing of air from the bellows; and others are harsh, like the noise produced by sawing.

*Auscultation of the large vessels.*—Not unfrequently a soft systolic blowing is audible at the base of the heart, or over the carotids and deep jugular vein. At other times it is continuous, resembling humming. These murmurs are distinguished from valvular ones, by being systolic at the base of the heart; by their softness; by not being permanent, and by occurring in anemic persons, and especially in young girls.

*General remarks.*—In prescribing a medicine, attention must be paid to the following points: *age, sex, temperament, habit, condition of system, climate, and season* of the year. The prescriptions in this work are for adults, except when the contrary is stated. Children bear as large doses of alteratives as adults, but they are much more susceptible to the influence of anodynes; consequently, hyoscin, opium, gelsemin, must be given in very minute doses to them. Females, also, require smaller quantities of powerful medicines than males.

The skill of the physician is shown by the administration of the proper remedy at the proper time. A physician must be practically conversant with disease to be able properly to apply his therapeutical resources to the exigencies of any particular case.

The practitioner will do well to bear in mind the following rules:

1. When a disease is progressing favorably towards recovery, do not interfere with the efforts of nature by the administration of drugs.

2. When drugs are needed, other things being equal, employ the remedy which will be the least distressing at the time, and, subsequently, the least injurious to the constitution.

3. Put the medicine in that form in which it can be most easily taken. When possible, especially with children, cover the disagreeable taste of the draught by syrups or trituration in sugar.

4. Attend to the condition under which the patient will be at the period of the medicine's action: *e. g.*, it will be worse than useless to give a sudorific to an individual obliged to be in the open air soon after taking it.

5. Be careful that the various agents in the prescription are not incompatible with each other.

6. Remember, that if a disease be incurable, it may still admit of great alleviation. Hence, it is cruel to give up any case; although, at the same time, the patient is not to be deceived by false promises.

7. Never order or sanction the use of a quack medicine; that is, one the composition of which is kept a secret, or a medicine of which you do not know the contents, let it come from whom it may.

8. All the concentrated remedies should be given in solution or trituration, and singly or in alternation. Many of the formulæ in this work may often be employed, unaltered, with great advantage; but all medicines of any power have to be adapted to the requirements of the special case under treatment.

**TEMPERATURE OF BODY.**—The normal temperature at unexposed parts of surface is  $98.4^{\circ}$ , Fahr. A persistent rise above  $99.5^{\circ}$ , and a continued depression below  $97.3^{\circ}$ , are indicative of disease. The increase above  $99^{\circ}$  is the best index of the amount of fever present.

Observations should be taken at least every morning and evening, always at the same hour, throughout the whole illness. Pulse and respirations to be noted at the same time. The bulb of a thermometer to be applied to armpit, groin or belly; to be kept in close contact with the skin; to remain *in situ* for at least three minutes. A very sensitive curved thermometer, and a straight, self-registering instrument, in a convenient case, from any surgical-instrument maker. There is a continuous elevation of temperature in all cases of progressive *tuberculosis*, from the beginning; the temperature becoming normal when the disease becomes arrested. A continued elevation occurs in all *acute inflammatory diseases*.

In *rheumatism*, *empyema*, *suppuration*, *continued* and *cruptive fevers*, &c. During paroxysms of *ague*, from the commencement of rigors to the termination of the sweating stage, a persistent temperature of  $105^{\circ}$  is indicative of danger, or of a tendency to some important complication: in *pneumonia*, *typhoid fever*, *typhus*, *small-pox*, *measles*, *scarlet fever*, *crisipelas*, *acute rheumatism* and *ichorrhæmia*. In any case, a rise above  $106^{\circ}$  is very unfavorable; above  $110^{\circ}$ , the disease, in all probability, will be fatal. In *typhoid fever*, a sudden fall below normal heat has indicated the occurrence of hemorrhage from ulcerated Peyer's patches, many hours before blood has appeared in the stools. During *convalescence from acute diseases*, a sudden rise in the temperature may be the first indication of a relapse; an abnormal fall (as to  $95^{\circ}$ ) shows a tendency to collapse, and indicates the need of hot applications, stimulants, warm soups, &c.

## USE OF CHEMICAL TESTS.

Notice should be taken of the urine, its properties, such as its color, odor, density and reaction, before proceeding to test the urine for particular substances. The observation of one or more such properties may lead at once to the establishment of a correct diagnosis, and will certainly direct the path we should take in the subsequent chemical investigation of the fluid.

THE SPECIFIC GRAVITY OF THE URINE is at once obtained by means of a urinometer, and should always be noted at the commencement of the examination of this fluid, as it furnishes important indications for further proceedings. Thus, the specific gravity is generally diminished in chronic cases of Bright's disease, and increased in cases of diabetes; average,  $1015^{\circ}$ , in health.

TO DETECT ALBUMEN IN THE URINE.—Boil a portion of urine, in a test-tube, over the flame of a spirit-lamp, and observe the result. If the urine, which has in the preliminary examination proved to be acid, becomes hazy or coagulates, the presence of albumen is certain; but, if the neutral or alkaline is in its reaction, the cloudiness may be occasioned by the deposition of earthy phosphates. One drop of nitric



acid should, in the latter instance, be added, which will clear up the opacity of the fluid, if due to phosphates, but serve to increase its turbidity, if depending solely on coagulated albumen.

**TO DETECT BILE IN THE URINE.**—The test for bile-pigment is nitric acid, which changes the fluid containing it in any quantity, first, into a grass-green, and then into a ruby-red or reddish-brown tint. If the urine be very much loaded with bile, as in cases of jaundice, it is better to dilute it with water before adding the acid. If the test be applied to the urine, the colors often assume green, violet, pink and yellow hues. The same succession of tints may be induced by nitric acid acting upon urine containing an excess of indican, in consequence of this substance being resolved into blue and red indigo, which are destroyed by the continued action of the acid. The test for the chloric acid of the bile is applied in the following manner: a few drops of simple syrup are mixed with a small quantity of urine, contained in a test-tube; concentrated sulphuric acid is then gradually added in considerable quantity. If chloric acid be present, the mixture will exhibit a purple color. True bile is seldom found in urine, even when large quantities of the coloring matter exist.

**TO DETECT SUGAR IN THE URINE.**—Boil for five minutes in a tube, with half its bulk of liquor potassa. If sugar be present, the liquid assumes a brownish color. Another test consists in adding a few drops of a solution of sulphate of copper, so as to give the urine a pale-blue color; liquor potassa is then added, until the hydrated oxide of copper thrown down is again dissolved, which will occur if the urine be saccharine. The clear blue solution must now be boiled, when, if sugar be present in very small quantity, it will be indicated by the mixture assuming a yellowish-red tint; but, if in large amount, by its becoming opaque from the formation of the yellow sub-oxide of copper. If the urine contain no sugar, a green precipitate only is formed on ebullition.

For the detection of grape-sugar in the urine, the following solution is useful: take of bi-tartrate of potash and crystallized carbonate of soda, of each 150 parts; of caustic potash, 80 parts; of sulphate of copper, 50 parts, and of water, 1,000 parts; dissolve the carbonate of soda and potash in part of the water, boiling; then add the sulphate of copper, powdered. When all the bi-tartrate is dissolved, add the rest of the water, and filter. A few drops of this solution, under the action of heat, added to a little urine in a test-tube, will throw down a green or yellow precipitate of sub-oxide of copper, if sugar be present.

**TO DETECT CHLORIDES IN THE URINE.**—Add to urine, in a test-tube, about a sixth part of its bulk of strong nitric acid, and then a few drops of a solution of nitrate of silver. If any soluble chloride be present, the chlorine will be thrown down in combination with the silver, as a white precipitate; but, if none exist, the fluid will remain clear.

**TO DETECT PUS IN THE URINE.**—Boil the urine as for albumen, and then add liquor potassa; if there is pus, it will be coagulated in the form of gelatine.

## FAVORITE FORMULÆ.

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### *Extract of Beef.*

Take one pound of rump-steak, mince it fine, like sausage-meat, and mix it with one pint of cold water. Place it in a pot at the side of the fire, to heat very slowly. It may stand two or three hours, before it is allowed to simmer, and then let it boil gently for fifteen minutes. Skim and serve.

### *Liebig's Soup for Invalids.*

Take one-half pound of newly killed beef or fowl, chop it fine, add ℥xij of distilled water, four drops of pure muriatic acid, thirty-four to sixty-seven grains of common salt, and stir well together. After an hour, the whole is to be thrown on a conical hair-sieve, and the fluid allowed to pass through without any pressure. The first thick portions which pass are to be returned to the sieve, until the fluid runs through quite clear. On the flesh residue in the sieve, pour slowly ℥vj of distilled water, and let it run through. There will be thus obtained about sixteen fluid ounces of cold juice, (cold extract of flesh,) of a red color, and possessing a pleasant taste of soup, of which a wine-glassful may be taken at pleasure. It must not be warmed, (at least, not to a greater extent than can be effected by partially filling a bottle with it, and standing this in hot water;) since it is rendered muddy by heat, and deposits a thick coagulum of albumen and the coloring matter of blood. Very valuable in cases of continued fever, in dysentery; and, indeed, in all diseases attended with great prostration and weakness of the digestive organs. When the flavor is thought disagreeable, it may be concealed by the addition of spice, or of a wine-glassful of claret to each teacupful of soup.

### *Essence of Beef.*

Take a pound of lean beef, free from skin and fat; chop it up, put it into a large jar, with cover, cement the edges with flour-paste, tie it up tightly in a cloth, plunge it into a saucepan, and let it boil for two hours, pour off the liquid essence from the coagulated muscle, let it stand till cold, and skim off the fat.

### *Extract of Bullock's Blood.*

This somewhat novel remedy is beginning to be pretty much used by German physicians. It is prepared, according to Mauthner's process, by straining the blood of the ox through a fine sieve, and drying and powdering the residue. Of this medicine, Dr. Horing gives from ten to thirty grains in the twenty-four hours, according to the age of

the patient. He relates the particulars of three cases in which he administered it; the first, a case of curvature of the lower part of the spinal column, with loss of power of limbs; the second and third, cases of tuberculosis, occurring in a child aged three, and a man aged forty. The treatment was successful in every case, the curvature being arrested in the first, and the cough and emaciation greatly improved in the second and third.

### *Eggs, Cream, and Extract of Beef.*

Wash a quarter of a pound of the best pearl sago until the water poured from it is clear. Then stew the sago in a pint of water, until it is quite tender and very thick; mix with it a pint of good, boiling cream, and the yolks of six fresh eggs, and mingle the whole carefully with two quarts of good beef tea, which should be boiling.—Serve. This nourishing broth is very useful in many cases of lingering convalescence, after acute disease.

### *Mutton or Veal Broth.*

Take of mutton or veal, four pounds; cold water, three quarts; a little salt; and rice, four ounces. Simmer for four hours, boil for a few minutes, strain and serve.

### *Liebig's Soup for Children.*

It is well-known that cow's milk does not adequately represent the milk of a healthy woman. Baron Liebig offers us a formula that is well calculated to meet this want.

It is prepared as follows: half an ounce of wheat flour, the same quantity of malt flour, seven grains and a quarter of the bi-carbonate of potash, and one ounce of water, are to be well mixed; five ounces of cow's milk are then to be added, and the whole put on a gentle fire; when the mixture begins to thicken, it is removed from the fire, stirred for about five minutes, heated and stirred again, till it becomes quite fluid, and finally made to boil. After the separation of the bran by a fine sieve, it is ready for use. By boiling it a few minutes it loses all the taste of the flour. This soup proves an excellent food; the children thrive perfectly on it, and is the best substitute for the natural nourishment of those children who are, by circumstances, deprived of their mother's milk.

### *Gruel and Beef Tea.*

Take two tablespoonsful of oatmeal with three of cold water, and mix them thoroughly; then add a pint of strong, boiling beef tea, (or milk;) boil for five minutes, stirring well to prevent the oatmeal from burning; and strain through a hair sieve. An excellent, simple restorative during convalescence from acute disease, before solid food can be taken.

### *Tapioca and Cod-Liver.*

Boil a quarter of a pound of tapioca till tender, in two quarts of water; drain it in a cullender, then put it back in the pan; season

with a little salt and pepper, and pour over one-half pint of milk; one pound of fresh cod-liver cut in eight pieces; set the pan near the fire to simmer slowly for half an hour, or a little more, till the liver is quite cooked. Press on it with a spoon, so as to get as much oil into the tapioca as possible; after taking away the liver, mix the tapioca; if too thick, add a little milk, then boil it a few minutes; stir round, add a little salt and pepper, and serve. Tapioca, thus cooked, is nourishing and easily digested.

### *The Bran Loaf.*

The formula used is as follows: take a sufficient quantity (say two or three quarts) of wheat bran, boil it in two successive waters for ten minutes, each time straining it through a sieve; then wash it well with cold water, (on the sieve,) until the water runs off perfectly clear; squeeze the bran in a cloth as dry as you can, then spread it thinly on a dish, and place it in a slow oven; if put in at night, let it remain until the morning, when, if perfectly dry and crisp, it will be fit for grinding. The bran, thus prepared, must be ground in a fine mill and sifted through a wire sieve of sufficient fineness to require the use of a brush to pass it through; that which does not pass through at first must be ground and sifted again, until the whole is soft and fine. Take of this bran-powder three ounces, troy, three fresh eggs, one ounce and a half of butter, rather less than half a pint of milk; mix the eggs with part of the milk, and warm the batter with the other portion; then stir the whole well together, adding a little nutmeg and ginger or any other agreeable spice. Immediately before putting into the oven, stir in first thirty-five grains sesqui-carbonate of soda, and then three drachms of dilute hydrochloric acid. The loaf, thus prepared, should be baked in a basin (previously well buttered) for about an hour or rather more.

Biscuits may be prepared as above, omitting the soda and hydrochloric acid, and part of the milk, and making them of a proper consistence for moulding into shape. If properly baked, the loaves or biscuits will keep several days, but should always be kept in a dry place, and not be prepared in too large quantities at a time.

### *White Wine Whey.*

To half a pint of hot milk, add one wine-glassful of sherry or madeira; then boil until the curd separates, and strain through muslin. Sweeten with refined sugar.

### *Ferruginous Chocolate.*

Spanish chocolate, ℥xvi; carbonate of iron, half an ounce. Divide into one ounce cakes. One to be dissolved in half a pint of milk, and taken night and morning. In anemia, amenorrhœa, &c.

### *Lime-water and Milk.*

Ry.—Liquoris calcis, lactis, āā ℥ij.—M. This compound will sometimes be retained when all other food is ejected. As a variety, milk and soda-water, in equal proportions, may also be ordered.



*Artificial Asses' Milk.*

Take half an ounce of gelatine, and dissolve it in a pint of hot barley water; then add an ounce of refined sugar, and pour into the mixture a pint of good, new cow's milk.

*Artificial Goat's Milk.*

Chop an ounce of suet very fine, tie it lightly in a muslin bag, and boil it slowly in a quart of new milk. Sweeten with white sugar. An excellent aliment in some cases of *tabes mesenterica*, &c.

*Milk, Flour and Steel.*

Beat up carefully, one tablespoonful of flour, one raw egg, and about a scruple of the carbonate of iron, with half a pint of new milk; flavor with nutmeg and white sugar. To be taken for lunch with a biscuit. In the early stages of tuberculosis, the author has found this mixture very valuable.

*Bread Jelly.*

Take a quantity of the soft part of a loaf, break it up, cover it with boiling water, and allow it to soak for some hours; the water, containing all the noxious matter with which the bread may be adulterated, is then to be strained off completely, and fresh water added; place the mixture on the fire and allow it to boil for some time, until it becomes smooth; the water is then to be pressed out, and the bread, on cooling, will form a thick jelly. Mix a portion of this with sugared milk and water, for use as it is wanted. A good food for infants at the time of weaning, &c.

*A Nutritious Demulcent Drink.*

Mix together half a pint of *mistura acaciæ*, *mistura amygdalæ* and pure milk; sweeten with sugar, candy or honey, and add one large tablespoonful of any liquor. Allow the whole to be taken during the day.

This drink is very grateful in cases of tonsillitis, ulceration of the pharynx, &c.; also, in some cases of debility, with irritability of the stomach, and a tendency to diarrhœa.

*An Excellent Nutritious Enema.*

This enema may be made by mixing together from four to twelve ounces of very strong beef tea, half an ounce of melted butter, and half an ounce of brandy, or one ounce of port-wine. It may be administered twice or thrice in the course of twenty-four hours, in cases of acute gastritis, carcinoma of the stomach, &c., where it is necessary to rest this viscus.

*Cod-Liver Oil Enema.*

Take four ounces of essence of beef, two ounces of port-wine, half an ounce of cream, an ounce of cod-liver oil, and twenty drops of laudanum. Administer this enema every eight hours.

*Quinine and Beef Enema.*

Take one tablespoonful of brandy, six grains of disulphate of quinine, two tablespoonsful of cream, and from four to eight ounces of strong beef-tea. The latter should be made without any salt or spice. This enema may be administered every six or eight hours. If the rectum is very irritable, from twenty to thirty minims of Battley's liquor opii, or other sedatives may be advantageously added.

*The Alcoholic Vapor-Bath.*

This is superior to the simple vapor of water. It includes the latter, with all its advantages, in addition to the rare stimulating effects of the alcohol in a state of vapor. A considerable portion of the alcohol rises in alcoholic vapor. For convenience, and facility of application, it is much preferable to the simple aqueous vapor-bath. It is thus applied: Place the patient on a solid chair, with his feet in warm water and the blanket around his neck, and give him some warm diaphoretic tea. Then, instead of the tub of hot water, pour some proof spirits, or any alcoholic fluid that will burn, in a cup, and set it on fire. Take care to keep the vessel under the chair, as near the centre as possible, where it will not scorch the patient or the blanket. A woolen blanket is much the best. If the vapor gets too hot to be borne, raise the blanket a little and let in cool air. Let the patient drink warm water infusions till the perspiration starts, then give him cold water. If the spirits give out before you get through, be careful, in filling the dish, not to set fire to your whole supply. After continuing the operation long enough, or until the patient begins to feel fatigued, wrap him in the blanket, and put him to bed. It is best to let him sweat there, without disturbance, for several hours. Then wash him off with a weak lye, and change his linen.

It is also a good plan to give the patient an alkaline-bath before the vapor-bath.

This mode of inducing perspiration I deem the best yet known, and often have recourse to it, as well for local as general disease. It does not prostrate so much as the water vapor, nor render the patient so liable to take cold afterward.

When the patient is very weak, the alcoholic vapor may be administered while he is still in bed. An apparatus, consisting of a large spirit-lamp, with a funnel inverted over it, and attached to a sufficient length of tin tube with joints, so as to be placed and directed where desired, and a cage made of half-hoops to cover the patient from neck to foot, and separate the bed clothes some six or seven inches from his body. This cage being placed over the patient, is covered with blankets, and receives the vapor and heat through the tube from the lighted lamp.

*Medicated Vapor-Bath.*

For this purpose, you have only to put volatile articles into the water or alcohol, and proceed as before directed.

*The Alkaline-Bath.*

This is a measure which the reader will often find directed. Of all mediated baths, though the simplest in principle, it is the most important. All physicians know that, besides the aqueous matter of perspiration, there is thrown out from the cutaneous glands an oleaginous substance, which, in many unhealthy conditions of the system, concretes upon the surface, and there forms a positive mechanical obstruction to perspiration. Sometimes, by this alone, the escape of a large portion of fluid from the system is prevented, and the effete matter, which it was destined to carry off in solution, is thrown back upon the different tissues, and acts upon them as an irritant, or rather re-enters as a poison. Simple water, cold or warm, or medicated baths, unless of an alkaline nature will not affect this oily deposit, concremented, as it is, into a sort of additional impervious cuticle.

However, with an alkaline wash, the body makes its own soap, and the skin is thoroughly cleansed; while, at the same time, the vessels are gently stimulated in a manner that experience has proven to be highly conducive to the permanent healthy performance of their functions.

The alkaline-bath is generally made of common pearl-ash, saleratus or soda. As to strength, the general rule is, that it should produce no smarting on any part of the surface, but feel slippery to the fingers. When desirable to have it more stimulating, this can be effected by adding alcohol, tincture of capsicum, or brandy. In acute congestive disease, some addition of this kind is proper, when it should be used hot. In most chronic cases it is better administered tepid; cold, however, when the patient's system readily reacts. The general rule is to have it lukewarm.

*Fomentations* are very convenient when we wish to subject a particular part of the body to soothing and relaxing remedies. Among the articles that may be used for this purpose are, hops, tansy, elecampane, wormwood, and Roman wormwood, eupatorium, lobelia, stramonium, &c. Put the articles to be used, with water or vinegar, in a vessel, and boil them for a few minutes. Then, taking out a portion of the herbs, inclose them in flannel cloths, and apply them to the part, as warm as they can be borne. Remove them as soon as they begin to cool, and immediately apply a fresh portion. Or flannel cloths may be wet in the strong decoction and wrung out. Before being placed in the boiling vessel, have the herbs served up in two flannel bags, which is a much better plan. If the part to be fomented is a limb, the most convenient plan is, to place it over a vessel of boiling liquid, containing the herbs, and cover all with a blanket, so as to confine the steam, which may be kept or increased to any desired amount by placing in hot bricks. When the hip, testicles, or anus, is the part affected, the patient may be seated over the vessel with a blanket around his loins, and the steam excited in the manner before described.

*Acid-Bath.*

The acid-bath may be made by adding to the water the common vinegar, and using in the same manner as the alkaline wash, with which it is sometimes usually alternated. In mercurial cases, acid

bathing is especially indicated. In most cases, acetic, citric, or other vegetable acids are preferable to those of mineral origin. Peculiar conditions may indicate sulphuric or nitro-muriatic dilutions.

*Nitro-Hydrochloric Acid-Baths.*

R.—Acidi nitrici, fl. ʒiiss; acidi hydrochlorici, fl. ʒj—iij; aquæ calidæ, cxxx.—*M.* To be prepared in a wooden bath. The patient should remain in it from ten to twenty minutes.

Useful in cases where the liver is inactive, as in invalids from tropical climates.

R.—Acidi nitrici, fl. ʒiv; acidi hydrochlorici, fl. ʒj; aquæ calidæ, civ.—*M.* For a foot-bath.

In dyspepsia, with derangement of the liver and constipation. To be used in a wooden or earthenware vessel.

*Alkaline-Bath.*

R.—Sodæ carbonatis, lb i; aquæ ferventis, cxxx.—*M.*

In the lithic acid diathesis, chronic squamous diseases of the skin, chronic rheumatism, &c.

*Conium and Starch-Bath.*

R.—Extracti conii, grs. cxx; pulveris amyli, lb i; aquæ ferventis, cxxx.—*M.* For a bath.

In certain skin diseases, attended with great irritability.

*Creosote-Bath.*

R.—Creosoti, fl. ʒij; glycerine, fl. ʒij; aquæ ferventis, cxxx.—*M.*

In squamous diseases of the skin.

*Iodine-Bath.*

R.—Iodinii, grs. lx; potassii iodidi, ʒ½; liquoris potassæ, fl. ʒij; aquæ calidæ, cxxx.—*M.*

In scrofula, chronic rheumatism, secondary syphilis, and certain skin diseases.

*Sulphur-Bath.*

R.—Potassæ sulphuratæ, ʒiv; aquæ calidæ, cxxx.—*M.*

Useful in scabies, lead colic, paralysis from lead, &c.

R.—Potassæ sulphuratæ, ʒiv; sodæ hyposulphitæ, ʒi; acidi sulphurici, fl. ʒj; aquæ calidæ, cxxx.—*M.*

*Iron or Oak-Bark Baths.*

R.—Ferri sulphatis, ʒ½; aquæ, civ.—*M.*

Especially useful for strumous or rickety children.

R.—Quercus contusæ, lb i; aquæ calidæ, Oij.—*M.* Boil for half an hour, and add the strained decoction to three gallons of warm or tepid water. To be used every morning.

For delicate children, &c.

*Salt-water Baths.*

R.—Rock salt, lb ½; aquæ tepidæ, civ.—*M.* Make a sponge-bath, to be used every morning.



*In general debility, chronic rheumatism, &c.*, the surface of the body should be thoroughly rubbed with a flesh-brush and coarse towels.

*Ry.*—*Salis marini*, ℥ii; *magnesiae sulphatis*, ℥iii; *potassii iodidi*, grs. exx; *liquoris calais chloratae*, fl. ℥iss; *aquæ*, exxx.—*M.*

### *The Turkish Bath.*

The general effect of a hot-air bath is to increase the force and rapidity of the circulation, and to induce free perspiration; but, if too hot or too prolonged, the determination of the blood to the skin and lungs becomes so great that the brain suffers. There is, then, consequently, a lowering of the circulation, with depressed nervous power. A temperature, varying from 120° to 165° will usually suffice; while, if the perspiration is efficient and continuous, and the sensation agreeable, the patient may remain in the caldarium for from forty to sixty minutes. This bath is *useful* in removing local congestions, in clearing the pores, and in inducing a healthy condition of the skin and mucous membranes, in eliminating noxious matters from the blood, and in imparting a sense of elasticity and vigor to the system. It is *injurious* when there is any obstruction to the circulation, or when the heart or vessels are affected with fatty degeneration, or when there are any symptoms of disease of the nervous centres, or when there is a tendency to vertigo or syncope, and in advanced life. Women who are pregnant, or who are menstruating, ought not to have recourse to it.

### *Acid Sponging.*

One part of vinegar is to be added to two or three of cold water, and the body well sponged with the mixture. Simple tepid water may sometimes be advantageously used. The patient being weak and unable to move, the sponging must be done by degrees, *i. e.*, the arms, chest, back and legs are to be rapidly washed and dried. In many cases of fever, inflammation, scarlatina, &c.

### *Phosphorus Pills.*

*Ry.*—*Miscæ panis*, grs. lx; *aquæ destillatæ*, sufficient to make a mass. Then add: *phosphori*, gr. i. Mix thoroughly, divide into twenty pills, and order one to be taken three daily.

In extreme debility and mental depression, after cholera, diphtheria, &c.

### *Phosphorus and Oil.*

*Ry.*—*Phosphori*, gr. i; *olei morrhuae*, fl. ℥vj.—*M.*

One or two teaspoonsful three times a day, immediately after meals. In tuberculosis, rickets, serofula, &c.

*Ry.*—*Phosphori*, gr. i; *olei amygdalæ*, fl. ℥iij.—*M.*

One teaspoonful in a wine-glassful of barley-water three times a day.

### *Hypophosphite of Soda.*

*Ry.*—*Sodæ hypophosphitæ*, *vel.*, *calcis hypophosphitæ*, grs. xxx—lxxx; *infusi chirate*, fl. ℥viij.—*M.* One-sixth part three times a day.

In phthisis, tabes mesenterica, &c., in progressive locomotor ataxy,

the efficacy of this mixture may be increased by giving a pill, containing muriate of gold, with each dose.

R.—Sodæ hypophosphitæ, grs. lxxx—ccxl; spiritus ætheris, fl. ʒj; tincturæ sunbulis, *vel*; tincturæ cinchonæ flavæ, fl. ʒij.—M. One teaspoonful in a large wine-glassful of water three times a day.

In *epilepsy, hysteria, neuralgia, some forms of hypochondriasis, &c.*, this mode of administering phosphorus may be useful. The dose at first should be moderate and gradually increased. In very obstinate cases of neuralgia, a cure may, perhaps, be effected by the hypophosphite of soda in forty or even sixty grain doses, repeated thrice daily, when the ordinary quantities have no effect. Where no appreciable benefit ensues in six or eight days, the remedy will probably prove useless, however long it may be continued.

### *Preparations of Pepsin.*

The physician is sometimes hindered in the administration of tonics and animal food, by the inability of the stomach to digest them; and this frequently happens where these restoratives are most needed; in lingering illness, and during convalescence from acute disease.

The food is subjected in the stomach to the action of the gastric juice; a secretion, consisting of water, probably of lactic and hydrochloric acids, and of an azotized substance, having the nature of a ferment—pepsin. When, from any cause, the secretion of the gastric glands is deficient or arrested, recourse may be had to the use of artificial pepsin with great advantage. This substance is usually prepared from several rennet bags, (the fourth stomach of the ruminants,) by washing them, and scraping off the mucous membrane. The latter is then reduced to a pulp, macerated in distilled water for twelve or twenty-four hours, and filtered. A sufficiency of acetate of lead is added to the liquor, the precipitate is collected, and a current of sulphuretted hydrogen passed through it. Then it is again filtered, evaporated at a low temperature, and the dry residue (pepsin) powdered. The chief symptoms which call for the use of this agent are: imperfect or slow digestion, with flatulence, acid eructations, nausea, low spirits and lassitude; diarrhoea, with portions of undigested food in the evacuations; phthisis, cancer, and other diseases attended with great debility; and affections of the stomach itself, as gastric ulcer, malignant disease of the pylorus, &c. It is also beneficial in anemia, want of appetite, offensive breath, dilated stomach, morbidly fetid stools, and sometimes in the sickness of pregnancy. Pepsin should be given alone, or it may be mixed with certain medicines, without its properties becoming deteriorated. Thus, when severe pain follows the indigestion of food, the sixth of a grain of morphia can be added to each dose; when there is pyrosis, fifteen grains of the white bismuth; when the peristaltic movements are sluggish, the twentieth or twenty-fifth part of a grain of strychnia; and, when there is anemia, some preparation of iron—particularly the reduced iron, or the citrate of iron and quinia. It is a common occurrence for patients to tolerate ferruginous tonics and cod-liver oil by the aid of pepsin, who cannot do so without.

There are several preparations of this agent which may be used. One is, the pepsin is mixed with starch, in such proportions that one part of the powder so formed will have the power of digesting four parts of fibrine at a temperature of 98°, Fahr. Thus, fifteen grains of it will probably cause the meat of a mutton-chop to be digested in the stomach. This, then, is the ordinary dose; and it should be taken at the commencement of the meal, either between two pieces of bread, or in a tablespoonful of lukewarm soup.

Another: *Pepsine wine* is obtained from the gastric juice of the calf's stomach. It is an agreeable, slightly acidulated wine; the dose being one teaspoonful, in water. The *pepsine lozenges* are convenient and agreeable. And, lastly, there is the *rennet*, or *pepsine wine*, the preparation of which is thus described: Take the stomach of a calf, fresh from the butcher, and cut off about three or four inches of the upper or cardiac extremity, which, containing few glandular follicles, may be thrown away; slit up the organ longitudinally, and wipe it gently with a dry napkin, taking care to remove as little of the clean mucus as possible; then cut it into small pieces, (the smaller the better,) and put all into common wine-bottles; fill up the bottle with good sound sherry, and let it remain corked for a fortnight; at the end of this time it is fit for use. The dose is a teaspoonful, in a wine-glassful of water, immediately after meals. There is another suggestion for the test of pepsine: Put a small cup, containing milk, in a vessel of hot water, until the milk becomes blood-warm; then add a teaspoonful of rennet wine, and, if it be genuine, the milk, in two or three minutes, will become as solid as blanc mange.

*Morphia, Atropine, Aconitine, &c., for Hypodermic Injection.*

The solution of *acetate of morphia*, as used for injection under the skin, is generally made by mixing ten grains of this salt with one drachm of distilled water; sufficient acetic acid is then added to dissolve the morphia; the fluid being afterwards neutralized by the addition of liquor potassæ, until a cloud appears. Finally, one or two drops of acetic acid are used to gently acidulate the mixture.

Each six minims of this solution will contain one grain of acetate of morphia. For first injections not more than one minim and a half should be used, as it is certain that this narcotic acts more powerfully, when thus employed, than when taken into the stomach. In diseases which are continuously painful, the ease given by an injection will last for about twelve hours. To relieve the suffering of advanced cancer, &c., the injection may be advantageously given, night and morning, for many months.

The subcutaneous injection of *atropine* is sometimes useful in cases of intestinal obstruction, asthma, tetanus, neuralgia, chorea, in the adult, &c. Great caution is necessary; not more than two minims of the official liquor atropiæ (equal to grs. 1.50) should be employed at first.

*Chloroform* may be used in the same manner. The injection of ten or fifteen minims often effects a cure, for the time, in pleurodynia,

neuralgia, sciatica, &c. It has the disadvantage of sometimes producing an irritable ulcer, which may be slow in healing.

A solution of *aconitine* may be made thus: *Aconitinæ*, gr. i; *spiritus rectificati*, min. x; *aquæ distillatæ*, fl. ʒij.—*M.* For first injections not more than two minims should be employed; the dose may afterwards be safely increased to four minims (grs. 1.30.)

It is better, though not absolutely necessary, to make the injection at the seat of pain.

### *Morphia, Chloroform and Indian Hemp.*

*Liquoris morphiæ hydrochloratis*, min. xx; *chloroformi*, min. x; *tincturæ cannabis indicæ*, min. xx; *pulveris tragacanthæ compositi*, grs. xxx; *spiritus æstheris*, min. xl; *acidi hydrocyanici diluti*, min. iv; *aquæ* fl. ʒiss.—*M.* For a night draught.

Given in many chronic diseases attended with pain or restlessness.

The medicine called *chlorodyne* consists essentially of chloroform, Indian hemp, morphia, and hydrocyanic acid. The following is the formula for its preparation: Take of chloroform half a fluid ounce; sulphuric ether, ninety minims; oil of peppermint, eight drops; resin of Indian hemp, six grains; capsicum, two grains.—*M.* Shake occasionally, and allow it to stand for a few days. Take of muriate of morphia, sixteen grains, dissolved, by the aid of heat, in two fluid drachms of water; to which, when cold, add of Scheele's hydrocyanic acid, sixty-five minims; perchloric acid, one fluid drachm; molasses, two fluid ounces. Add this gradually to the first mixture, and then make the whole measure four fluid ounces, by the addition of molasses or water. Each dose of thirty minims contains, of chloroform, min. iv; ether, min. iss; extract of hemp, gr. 1-10th; hydrochlorate of morphia, gr. ¼; and of Scheele's acid, min. j.

### *Cimicifuga Racemosa, or Black Snake-root.*

*R.*—*Tincture actææ racemosæ*, min. xxx—fl. ʒij; *aquæ*, ad fl. ʒij.—*M.*; for a draught. To be administered every three or four hours, until nausea ensues or the pulse becomes lowered.

This drug possesses narcotic and eliminative properties, and is useful in chronic rheumatism, lumbago, chorea, obscure nervous pains, and in backache from uterine disturbance.

### *American Hellebore.*

*R.*—*Tincture veratri viridis*, (a saturated solution,) min. v—x; *aquæ*, fl. ʒj.—*M.* This draught may be given every three hours, adding one drop of tincture each dose, until the pulse becomes sufficiently lowered, or nausea is produced. The latter is readily counteracted by small doses of morphia.

It is a valuable arterial sedative, and is particularly used by American physicians in inflammations of the lungs, pleura or peritoneum, and in acute rheumatism.

### *Solution of Chlorinated Soda.*

*R.*—*Liquoris sodæ chlorinatæ*, ʒij; *tincturæ opii*, ʒss; *misturæ camphoræ*, ʒviij.—*M.* Take ʒj three times a day.



In gangrene of the lung, low fever, &c., it not only relieves the fetor, but acts as an alterative, &c. If necessary, the opium should be omitted.

### *Chlorine Gas.*

As a fumigating agent, antiseptic and disinfectant, chlorine stands unrivaled. The ingredients for producing it should be contained in saucers, placed in the higher parts of the room, as the gas which is developed will descend by its density, and soon become mixed with the surrounding air. Dr. Faraday adopted the following method: one part of common salt was intimately mixed with one part of the black or benoxide of manganese, and placed in a shallow earthen pan; two parts of oil of vitriol, previously diluted with two parts, by measure, of water, were then poured over it, and the whole stirred with a stick. Chlorine continued to be liberated from this mixture for four days. A more simple method of causing a rapid evolution of chlorine gas is, by placing some chloride of lime in a saucer, and pouring over it a small portion of diluted hydrochloric acid, or a solution of common salt.

### *To Prepare Chlorine for Internal Administration.*

Put eight grains of chlorate of potash in a strong pint bottle, and pour upon it one drachm of strong hydrochloric acid. Close the mouth of the bottle until the violent action ceases, when add one ounce of water, and agitate well; add another ounce, again shake, and continue this process until the bottle is full.  $\mathfrak{ss}$  or  $\mathfrak{3j}$  may be taken frequently, according to the age. An adult may use the whole pint in one day.

### *Permanganate of Potash.*

The permanganate of potash is an excellent disinfectant, and is the basis of the antiseptic fluid. Half a drachm to two or three drachms of this fluid, in one pint of water, may be applied to all kinds of suppurating sores. I have frequently used it with great benefit to destroy the horribly offensive odor of a malignant ulcer, or for the same purpose in suppurating scalds and burns. The solution should be made only of such a strength as to be borne without any pain, or even uneasiness. A piece of lint, saturated with the lotion, is to be laid over the sore, and a layer of cotton-wool applied over the whole. The solution ( $\mathfrak{5ij}$  to water,  $\mathcal{Oj}$ .) may be likewise employed as an injection in cancer of the uterus.

### *Chloride of Zinc.*

This substance is a most powerful caustic, which has long been used to destroy cancerous and other growths. It has been administered internally,—dose, gr. j, largely diluted,—but without any benefit. It forms, however, a valuable disinfectant gargle,—grs. x, to water,  $\mathfrak{viiij}$ ; or, in still larger proportions, it is a most efficacious antiseptic. Burnett's disinfecting fluid consists of grs. xxv of this salt, to water,  $\mathfrak{3j}$ . For use, about one ounce of this solution is added to two pints of water. To disinfect a sick room, a piece of flannel, three or four feet square, is to be moistened with a solution thus made, and frequently waved

through the air. Some of it should also be sprinkled upon the bare floor, as well as placed in the close-stools and bed-pans.

### *Chloride of Lime.*

R̄.—Calceis chloridi, ʒj; sacchari albi, ʒiv; amyli, ʒj; menthæ piperitæ, ʒj; pulveris tragacanthæ compositi, ʒij; aquæ menthæ piperitæ, q. s.—*M.*

This mass is to be divided into lozenges, of twenty grains each. One may be taken frequently, to remove fetor of the breath, whether due to mercury or other causes.

### *Bark and Camphor.*

R̄.—Spiritus camphoræ, m. xx; spiritus vini rectificati, ʒj; infusi cinchonæ ad ʒiss.—*M.* To be taken at one draught.

To be taken every six or eight hours by a nervous attendant in a sick room. Its efficacy may be increased by the occasional addition of a glass of port-wine.

### *Iodine.*

This agent has been recommended for disinfecting and deodorizing purposes. Two hundred grains are placed in a common chip-box, and suspended over the patient's bed; or it may be put into a cup or saucer on a mantel-shelf. If desired, the metal may be at once volatilized, and the vapor diffused through the apartment, by placing it on a heated fire-shovel. In rooms occupied by small-pox patients, the air may be kept free from smell by using iodine in this manner, probably the strongest proof which could be adduced of the value of this simple and manageable remedy.

R̄.—Tincture iodii, fl. ʒvj; aquæ distillatæ, ad fl. ʒviij.—*M.*

Useful as a lotion to unhealthy ulcerations, with offensive discharges.

### *Podophyllum Peltatum, or May Apple.*

R̄.—Podophylli resinæ, gr.  $\frac{1}{6}$ — $\frac{1}{3}$ ; pulveris ipecacuanhæ, gr.  $\frac{1}{2}$ ; extracti gentianæ, gr. iii. Make a pill, to be taken twice or thrice daily.

In syphilis, scrofula, jaundice from suppression, skin diseases, &c., as a simple alterative, it is highly prized, without possessing any injurious qualities. One or two grains of quinine may be advantageously added to each pill, where there is general debility.

### *Iodide of Potassium Mixtures.*

R̄.—Potassii iodidi, grs. xx—xxx; tincturæ serpentariæ, fl. ʒiij; misturæ guaiaci, ad fl. ʒviij.—*M.* One-sixth part to be taken three times a day.

Valuable in chronic rheumatism, and in acute tonsillitis.

R̄.—Potassii iodidi, grs. xx; liquoris potassa, fl. ʒij; tincturæ hyosciami, fl. ʒiij; infusion cinchonæ flavæ, ad fl. ʒviij.—*M.* One-sixth part three times a day.

In chronic rheumatism, with an abundance of lithates in the urine, as well as in some cases of eczema, &c.

R̄.—Potassii iodidi, grs. ii; vini colchici, min. xv; tincturæ aconiti, min. iij—viij; infusi rhei, fl. ʒj. Make a draught to be taken three times a day.

In chronic gout.

R̄.—Potassii iodidi, grs. iii—v; spiritus ammoniæ aromatici, min. xxx; tincturæ belladonnæ min. v—xv; tincturæ cinchonæ compositæ, fl. ʒj; aquæ menthæ piperitæ, ad fl. ʒiss. Make a draught, to be taken three times a day.

In some cases of asthma, the author has found remarkable benefit from this formula.

R̄.—Potassii iodidi, grs. xv—xxx; vini colchici, fl. ʒiss; tincturæ hyoscyami, fl. ʒij; magnesæ sulphatis, ʒij; infusi anthemidis, ad fl. ʒviij.—M. One-sixth part three times a day.

In some instances of gout, with fever and constipation, and in chronic pleurisy with effusion. Also in cases of lead and mercurial poisoning occurring in gouty subjects.

R̄.—Potassii iodidi, grs. xl; tincturæ rhei, ʒj; C. extracti stillingia, fl. ʒii.—M. A small teaspoonful in a wine-glassful of water three times a day.

In follicular inflammation of the pharyngo-laryngeal mucous membrane, &c.

#### *Chloride of Calcium.*

R̄.—Liquoris calcii chloridi, fl. ʒj; tincturæ aurantii, fl. ʒij.—M. One teaspoonful in a wine-glassful of water three times a day.

Very valuable in scrofula, tabes mesenterica, bronchocele, fibroid tumors of uterus, &c.

#### *Bromide of Ammonium.*

R̄.—Ammonii bromidi, grs. xii—lx; infusi aurantii, fl. ʒviij.—M. *Directions*—One-sixth part to be taken three times a day, an hour before meals.

Recommended for diseases in which the nervous system is functionally involved, as epilepsy, &c. It is a valuable absorbent in glandular enlargements, and in excessive corpulency; while it has also a peculiar soothing influence upon the mucous membranes.

#### *Iodide of Ammonium.*

R̄.—Ammonii iodidi, grs. iii—xv; infusi cinchonæ flavæ, fl. ʒi—ij. Make a draught, to be taken twice or thrice daily before food.

Very valuable in strumous enlargement of the absorbent glands. The dose is to be graduated according to the patient's age. At the time this medicine is given internally, an ointment of the iodide of ammonium, (grs. lx to lard ʒi,) should be rubbed into the swellings night and morning.

#### *Creosote or Carbolic Acid.*

R̄.—Creosoti, min. xx—xl; pulveris aromatici, grs. lxxx; mucilaginis acaciæ, sufficient to form a mass. Divide into twenty pills, and order one or two to be taken three times a day.

In some forms of neuralgia, chronic bronchitis and obstinate vomit-

ing, unconnected with inflammation or organic disease, such as seasickness. After taking creosote for a short time, the urine occasionally assumes a dirty or brownish-black color. Inunction with tar may give rise to the same effect. Under these circumstances, creosote has been obtained from the urine by distillation.

In the officinal *mistura creosoti*, the unpleasant flavor is tolerably well distinguished by the spirit of juniper. Dose, fl. ʒj—ij.

### *Bromide of Potassium.*

R.—Potassii bromidi, grs. lx—xc; potassii iodidi, grs. xii; potassæ bi-carbonatis, grs. xl; tincturæ aurantii, fl. ʒvj; aquæ, ad fl. ʒviiij.

M. One-sixth part, on an empty stomach, night and morning.

The favorite remedy in epilepsy.

R.—Potassii bromidi, grs. xxx—lx; tincturæ valerianatæ, fl. ʒvj; aquæ camphoræ, vel., infusi chiratas, ad fl. ʒviiij.—M. One-sixth part three times a day.

In hysteria, insomnia due to nervous irritability, functional disturbance of the uterine functions, spermatorrhœa, &c.

### *Sulphite of Soda, &c.*

R.—Sodæ sulphitis, grs. xxx—lx; infusi quassiæ, fl. ʒiss.—M., and make a draught, to be taken three times a day.

In diseases of the stomach, accompanied by the formation of the *sarcinæ ventriculi*. The patient should eat unfermented bread while taking this medicine.

The sulphite of magnesia may be given in the same way, with the object of neutralizing blood-poisons. It is richer in sulphurous acid than the sulphite of soda; is more stable, and has a much more agreeable taste.

This salt has been strongly recommended in cases of pyæmia, typhus, puerperal fever, hospital gangrene, dissecting wounds, glanders, cholera, &c.

### *Benzoic Acid.*

R.—Acidi benzoici, grs. iii—xx; theriacæ sufficient to form one or more pills.

Administered in proper doses, three or four times a day; this remedy is useful in jaundice from suppressed action of the liver, and in uræmia. It has also been recommended in some cases of incontinence of urine in children.

### *Quinine and Belladonna.*

R.—Quinine sulphatis, grs. ii; extracti belladonnæ, gr.  $\frac{1}{3}$ ; gelsemin, gr.  $\frac{1}{8}$ — $\frac{1}{2}$ ; extracti hyoscyami, grs. ii. Make a pill, to be taken every six or eight hours.

In neuralgia, pruritus of the vulva, carcinoma, &c.

### *Turpentine Mixtures.*

R.—Olei terebinthinæ, fl. ʒj; vitelli unius ori. Beat together and add gradually, misturæ amygdalæ, fl. ʒiv; syrupi aurantii, fl. ʒij;



tincturæ lavandulæ compositæ, fl. ℥iv; olei cinnamoni, gutt. iv.—*M.*  
Two tablespoonfuls to be taken three times a day.

Recommended in iritis.

### *Chloride of Bromium.*

*R.*—Bromidi chloridi, gutt. iij—iv; pulveris glycyrrhizæ, grs. lx.  
Mix intimately, and divide into twenty pills, one to be taken twice or thrice daily.

Recommended in cancer, by most eminent authority.

### *Hydrochlorate of Ammonia.*

*R.*—Ammoniæ hydrochloratis, grs. xc; syrupi hemidesmi, fl. ℥j; infusi dulcamaræ, fl. ℥viij.—*M.* Two tablespoonfuls every six hours.

In some forms of chronic rheumatism.

### *Stillingia, Kalmia, Irisin.*

*R.*—Stillingin, irisin, rumin, āā ℥ss; tincture kalmia, ℥ii; syrup, Oss; iodide potass, ℥ss.—*M.* S. A teaspoonful every three hours.

An excellent alterative.

### *Capsicum and Alum Gargle.*

*R.*—Aluminis exsiccatum, grs. c.; tincture capsici, fl. ℥ij; syrupi mori, fl. ℥j; aquæ rosæ, fl. ℥viij.—*M.*

In hoarseness, sore throat, &c., with relaxation of the uvula or tonsils.

### *Sulphite of Soda.*

*R.*—Sodæ sulphitis, ℥iij; aquæ destillatæ; fl. ℥j.—*M.* To be frequently applied, by means of a camel's-hair pencil, to the mucous membrane of the mouth and fauces.

In cases of aphthæ.

### *Iodine Inhalation.*

*R.*—Tincture iodidi, min. xxx; aquæ calidæ, fl. ℥iv.—*M.* The vapor is to be cautiously inhaled.

In some cases of laryngeal phthisis.

In severe coryza great relief is given, by holding a small bottle of tincture of iodine under the nose. The warmth of the hand suffices to vaporize the iodine.

### *Turpentine and Creosote Inhalations.*

*R.*—Olei terebinthinæ, fl. ℥j; aquæ calidæ, fl. ℥vj.—*M.*

In chronic bronchitis with excessive secretion. To be used with a common inhaler.

*R.*—Creosoti, min. xxx; aqua bullientis, fl. ℥viij.—*M.*

In ozæna and other affections of the nostrils, pharynx, &c.

### *Hydrocyanic Acid Inhalations.*

*R.*—Acidi hydrocyanici diluti, min. xx; tincturæ hyosciami, tinct. lupuli, āā fl. ℥j; aquæ calidæ, fl. ℥viij.—*M.*

In phthisis, ulceration of the larynx, &c. Can be used with any common inhaler.

R<sub>y</sub>.—Acidi hydrocyanici diluti, min. xv; spirituous chloroformi, fl. ʒiij—vj; aquæ bullientis, fl. ʒviij.—*M*.

In laryngitis, œdema of the glottis, &c.

#### *Atomized Fluids for Inhalation.*

The following drugs may be used in the form of spray. The dose mentioned is added to one ounce of water.

Alumen exsiccatum, - - - - -	grs. iij to xxx.
Acidum tannicum, - - - - -	grs. iij to xij.
Argenti nitras, - - - - -	grains i to v.
Aqua laurocerasi, - - - - -	min. v to xx.
Borax, - - - - -	grains v to xx.
Extractum belladonna, - - - - -	grains $\frac{1}{4}$ to i.
Extractum conii, - - - - -	grains v to x.
Liquor calcis saccharatus, - - - - -	min. xv to xc.
Oleum terebinthinæ, - - - - -	minims j to v.
Potassæ chloreas, - - - - -	grains v to x.
Potassii bromidum, - - - - -	grains ij to x.
Potassii iodium, - - - - -	grains ij to x.
Sodii chloridum, - - - - -	grains v to xl.
Tinctura ferri per-chloridi, - - - - -	min. v to xxx.
Extractum cannabis indicæ, - - - - -	grains $\frac{1}{4}$ to i.
Extractum opii, - - - - -	grains $\frac{1}{4}$ to ij.
Tincture iodi, - - - - -	minims j to xv.
Zinci sulphas, - - - - -	grs. iij to xv.

Atomized medicated fluids, may be advantageously used in affections of the lining membrane of the nose, mouth, and fauces. In croup, and diphtheria, syphilitic affections of the palate and throat, laryngitis, œdema of the glottis, tubercular or syphilitic ulcerations of larynx, hoarseness and loss of voice, whooping-cough, bronchitis, phthisis. During their application the patient should make deep and long inspirations and expirations. Except in acute cases, one application daily will suffice.

#### *Sanguinarin, Belladonna, and Acetic Acid.*

R<sub>y</sub>.—Sanguinarin, grs. xxx; ext. belladonna, grs. iii; acetic diluted, ʒiii.—*M*. Half a teaspoonful, as indicated in croup and other affections of the throat.

#### *Preparations of Lithia.*

R<sub>y</sub>.—Lithiæ carbonatis, grs. iii—v; aquæ, fl. ʒj. Make a draught, to be taken twice a day. It is an improvement to add it to a bottle of soda-water.

This remedy is spoken highly of in cases of uric acid diathesis, and in chronic gout. Where uric acid gravel is being voided, it causes a marked improvement. The carbonate of lithia exists in many of the Saratoga springs, as well as in other medicinal springs common in our country.

R.—Lithiæ citratis, magnesiæ carbonatis, āā grs. x. Make a powder, to be taken twice daily.

In chronic gout.

*Potash and Ammonia.*

R.—Potassæ bi-carbonatis, grs. cxx; spiritus ammoniæ, aromatici, fl. ʒiij; tinct. aconiti, min. xxx; infusi lupuli, fl. ʒviij.—M. One-sixth part three times a day.

In gastrodynia.

*Ammonia, Potash, and Bark.*

R.—Ammoniæ carbonatis, grs. xxx; potassæ chloratis, gr. xc; ext. opii liquidi, min. xxx; decocti cinchonæ flavæ, fl. ʒviij.—M. One-sixth part three times a day.

In debility with acid secretions.

*Solution of Potash and Buchu.*

R.—Liquoris potassæ, min. x—xv; tincturæ hyosciami, min. xx; infusi buchu, fl. ʒiss.—M. A draught to be taken three times a day.

In catarrh and irritability of the bladder.

*Soda, Morphia, Dilute Hydrocyanic Acid.*

R.—Sodæ bi-carbonatis, gr. xv; liquoris morphiæ hydrochloratis, min. xv; acidi hydrocyanici diluti, min. v; infusi cascarillæ, fl. ʒj.—M. A draught to be taken immediately.

In gastrodynia, &c., after the stomach has been emptied by an emetic. In angina pectoris, immediately after a paroxysm.

*Bi-carbonate of Potash.*

R.—Potassæ bi-carbonatis, grs. xxx; aquæ, fl. ʒiss. Make a draught, to be taken every two hours.

In acute rheumatism, continuing the medicine until the joints are free from pain. It generally renders the urine alkaline in twenty-four hours.

*Potash and Lime-water.*

R.—Liquoris potassæ, min. xv—xlv; liquoris calcis saccharati, fl. ʒij.—M. To be taken in a cupful of beef-tea, or of milk, two or three times a day.

*Acetate Potash and Cannabis Indica.*

R.—Acetate potash, ʒii; cannabis indica, ʒi; aquæ, ʒiv.—M. A teaspoonful every three hours.

Valuable in rheumatism.

*Lobelia, Ether, &c.*

R.—Tincturæ lobelia æthercæ, fl. ʒiij; vini ipecacuanhæ, fl. ʒij; misturæ ammoniaci, fl. ʒvj.—M. Two tablespoonfuls every six hours.

Valuable anti-spasmodic.

*Nitric Acid Mixture.*

R.—Acidi nitrici diluti, fl. ʒxij; tincturæ cardamomi compositæ, fl. ʒiij; syrupi, fl. ʒiiss; aquæ, fl. ʒj.—M. One or two small teaspoonsful every two hours.

It is stated that nitric acid is a specific in the treatment of whooping-cough, curing the disease in from two to fifteen days.

*Cold as a Local Astringent.*

The best and cheapest freezing mixture is made with ice and common salt, in equal parts. Any of the following, however, will prove useful:—

Mixtures	Parts.	Thermometer sinks.
Hydrochlorate of ammonia, - - -	5	From 50° to 10°.
Nitre, - - - - -	5	
Water, - - - - -	10	
Nitrate of ammonia, - - - - -	1	From 50° to 4°.
Water, - - - - -	1	
Snow. - - - - -	2	From 32° to —4°.
Common salt, - - - - -	1	
Snow or ice, - - - - -	12	From 18° to —25°.
Common salt, - - - - -	5	
Nitrate of ammonia, - - - - -	5	

*Valerianate of Quinia.*

R.—Quiniæ valerianates, grs. xii; extracti gentianæ, grs. xl. Divide into twelve pills, coat them, and order one to be taken three times a day.

In hysteria and analogous nervous disorders.

*Stramonium, Colchicum and Digitalis.*

R.—Potassæ citratis, grs. cxx; tincturæ stramonii, fl. ʒj; tincturæ colchici siminis, fl. ʒij; infusi digitalis, fl. ʒiij; aquæ menthæ piperitæ, fl. ʒviij.—M. One-sixth part three times a day.

In irregular gout, with dyspnœa or violent palpitation, and a full pulse.

*Lobelia and Bromide Potass.*

R.—Tincture lobelia, ʒi; bromide potass, ʒss.—M. Twenty drops every half hour in asthma. If the case does not quickly yield, add gelsemin in full doses.

*Gallic Acid.*

R.—Acidi gallici, grs. viii; morphiæ hydrochloratis, gr.  $\frac{1}{4}$ ; confectiois rosæ gallicæ, sufficient to make two pills. Label—to be taken every night at bedtime.

In the night-sweats of phthisis.

R.—Acidi gallici, gr. xv—xxv; acidi sulphurici aromatici, min. xv—xx; tincturæ cinnamomi, fl. ʒij; aquæ destillatæ, fl. ʒij. Make a draught, to be taken every few hours until the bleeding ceases.

In profuse menorrhagia, hæmoptysis, hæmatemesis, &c.

*Kino and Logwood.*

R.—Tincturæ kino, fl. ʒvj; vini ipecacuanhæ, fl. ʒij; decocti hæmatoxyli, fl. ʒviij.—M. One-sixth part three times a day.

In chronic dysentery, diarrhœa, &c.



*Sulphate of Zinc and Belladonna.*

R<sub>y</sub>.—Zinci sulphatis, grs. viii; extracti belladonnæ, grs. ii; aquæ, fl. ʒiv.—*M.* Half an ounce four times a day.

For a child above three years of age with whooping-cough.

Every other day the strength of the mixture may be augmented in the proportion of one dose. The belladonna may be thus gradually increased to doses of five grains, without any mischief.

*Logwood and Gelsemin.*

R<sub>y</sub>.—Extract Hematoxylum, grs. xxx; extract nux vomica, grs. v; leptandrin. grs. xx; gelsemin, grs. vi. Make twenty pills; one every two hours.

Valuable in diarrhœa and dysentery.

*Tannin and Gelsemin.*

R<sub>y</sub>.—Tannin, opii pulv., āā grs. xx; extract nux, capsicum and gelsemin, āā grs. v. Make thirty pills; two every three hours.

Acts promptly in diarrhœa.

*Belladonna and Aconite Liniment.*

R<sub>y</sub>.—Linimenti belladonnæ, linimenti aconiti, āā fl. ʒiv; linimenti camphoræ compositi vel chloroform, fl. ʒiij.—*M.* The seat of pain to be rubbed with this liniment for ten minutes, at bed-time.

In pleurodynia, chronic rheumatism, and painful nervous affections.

For the same class of cases a good liniment may be made with one part of belladonna liniment, one of opium liniment, and four of turpentine liniment.

R<sub>y</sub>.—Linimenti belladonnæ, fl. ʒiij; glycerini, fl. ʒv; linimenti saponis, fl. ʒij.—*M.* The spine to be rubbed with this liniment night and morning, for five minutes.

In whooping-cough.

May be used for a child five years old.

*Caoutchouc Solution.*

Take some thin pieces of India-rubber, or of pure gutta-percha, and dissolve them in chloroform.

A good protective solution.

To be painted over superficial excoriations, threatened bed-sores, &c., &c.

*Collodion Paints.*

R<sub>y</sub>.—Collodii, fl. ʒj; olei palmæ, min. xx; anchusæ radiceis, sufficient to give color. A good artificial cuticle, which, when spread on the skin, will not crack; may also be formed by mixing two parts of glycerine with one hundred of collodion. A similar preparation can be made with one part of collodion to two of castor-oil.

Either preparation may be used as a varnish in various cutaneous affections, excoriations, or superficial burns.

*Glycerine and Lime-water.*

\*R<sub>y</sub>.—Glycerine, fl. ʒj; pulveris tragacanthæ compositi, ʒvj; mellis depurati, ʒvj; liquoris calcis saccharati, fl. ʒiiss; mixturæ amygdalæ, fl. ʒviij.—*M.*

A good, bland embrocation in cases of herpes, superficial burns, chapped hands, excoriations, &c.

The official *linimentum calcis*, consisting of equal parts of olive-oil and lime-water, is also useful in some of the above-mentioned cases.

### *Sulphate of Atropia.*

R.—Atropiæ sulphatis, gr. i; aquæ distillatæ, fl. ʒiv.—*M.*

Dilatation of the pupil is affected most speedily and is longest maintained by a solution of this kind. A full drop must be placed in the eye by means of a camel's-hair pencil; the effect will be produced in from fifteen to twenty minutes, and will sometimes continue for seven or eight days.

The official *liquor atropice* contains half a grain of the alkaloid in each drachm. But the spirit which is used to keep it in solution causes considerable pain to the eyes when it is applied.

Discs of gelatine impregnated with atropine are prepared according to instructions. These discs dissolve and act very efficiently when placed in contact with the moist conjunctiva. A piece, one-fifth of an inch square, contains as much of the sulphate of atropia as a drop of the solution of two grains to the ounce of water.

### *Iodide of Lead Ointments.*

R.—Plumbi iodidi, grs. lx; unguenti atropiæ, grs. lx—cxx; (each ounce contains eight grains of the alkaloid;) unguenti simplicis, ʒi.—*M.*

In some malignant ulcerations.

R.—Plumbi iodidi, grs. lx; unguenti cetacei, ʒi; linimenti belladonna, vel linimenti aconiti, fl. ʒj.—*M.*

For malignant and painful strumous ulcers.

### *Aconitine Ointments.*

R.—Unguenti aconitiæ, ʒ½; (equal to grs. ii of the alkaloid;) unguenti stramonium, ʒi—ii.—*M.*

In some forms of neuralgia.

R.—Aconitæ, grs. ii; spiritus rectifici, gutt., vj.—Mix thoroughly, and add adipis præparati, grs. lx.

Recommended for severe neuralgia. A small portion is to be painted over the nerve, but it must not be used where there is the slightest abrasion.

### *Veratrin Ointment.*

R.—Unguenti veratriæ, unguenti potassii iodidi, āā ʒi.—*M.*

In chronic rheumatisms, chronic gout, &c.

### *Belladonna and Iodide of Potassium.*

R.—Linimenti belladonnæ, fl. ʒij; unguenti potassii iodidi, ʒi. Make an ointment. The liniment of aconite may be substituted for the belladonna, if desired.

In painful chronic tumors, neuralgia, &c.

### *Iodide of Sulphur Ointments.*

R.—Sulphuris iodidi, grs. xx; unguenti simplicis, ʒi.—*M.*

In acne, applied thrice daily.

R.—Sulphuris iodidi, grs. xii; sulphuris præcipitati, grs. xx; olei amygdalæ amaræ, min. v; adipis præparati, ℥i.—*M.*

*Iodide of Cadmium Ointment.*

R.—Cadmii iodidi, grs. lx; adipis præparati, ℥i; linimenti aconiti, fl. ℥iss.—*M.*

Superior to iodide of potassium ointment for rubbing into tender and enlarged strumous glands, nodes, &c.

*Irritating Plaster.*

R.—Tar, ℔i; burgundy pitch, ℥ss; white gum turpentine, ℥i; rosin, ℥ii. Melt together, remove from fire, and add finely pulverized mandrake-root, blood-root, poke-root, Indian turnips; of each one ounce.

The best of counter-irritants.

R.—Tincture aconite rad., ℥i; adipis, ℥ii; chloroform, ℥i; morphia, grs. xx.—*M.* Put in a wide-mouthed, glass-stopped vial; apply by spreading a little on the skin, over the seat of pain, and cover over with oiled silk.

Excellent for muscular pain.

*Iodine Lotion.*

R.—Iodide potass, ℥ii; iodine, grs. xv; aqua, ℥iv.—*M.* Wet a cloth, and envelope the joint, four times in the twenty-four hours. Good discutient and counter-irritant.

*Chromic Acid.*

R.—Acidi chromici, grs. lx; aquæ, fl. ℥iv.—*M.*

To destroy warts, small growths of epithelial cancer, &c.

*Chloride of Zinc, &c.*

R.—Bromi-chloridi, zinci chloridi, auri chloridi, platini chloridi; of each equal parts. Mix into a paste of sufficient thickness, with flour or powdered liquorice.

To destroy cancerous growths. Commonly known as Landolfi's paste.

R.—Sanguinariæ canadensis, ℥½—i; zinci chloridi, ℥½—ii; aquæ, fl. ℥ij; farinæ, sufficient to make a paste.—*M.*

The paste, thus formed, should have the consistence of molasses.

R.—Zinci chloridi, grs. xxx—lx; farinæ, grs. cxx; aquæ distillatæ, sufficient to form a mass.

To be applied over the diseased surface.

*Supersulphate of Zinc.*

Take half a fluid ounce of sulphuric acid, and saturate it with sulphate of zinc, previously dried and powdered. This caustic should be used by dipping a pen in it, and then drawing lines across the tumor, so as to eat through the skin in a few minutes. The fissures thus made, are to be filled with the paste, renewing the scratching and caustic every day or two. In this way, five or eight days may suffice for the removal of a good-sized tumor. By this combination, also, we can penetrate deeply without hardening the parts, and without fear of producing hemorrhage.

This is a very valuable caustic, and has been found particularly useful for the removal of cancerous tumors of the breast, &c. The pain which it produces will be best mitigated by employing the subcutaneous injection of morphia at each application.

*Podophyllin.*

R.—Podophyllin, grs.  $\frac{1}{2}$ ; pulveris rhei, grs. v; extracti hyoscyami, grs. iij. Two pills, to be taken every night at bed-time.

As a purgative in jaundice from suppression, in torpid liver, and in dropsy, from cardiac or renal or hepatic disease.

Podophyllin produces copious bilious stools; and is apt to gripe, unless combined with henbane.

R.—Podophyllin, grs. v; pulveris zingiberis, grs. xx; extracti hyoscyami, grs. xxv. Make a mass, divide into twelve pills, and order two to be taken every other night at bed-time.

As an efficient purgative in dropsy.

*Extract of Nux Vomica.*

R.—Extracti nucis vomica, grs. iij; pulveris ipsecacuanhæ, grs. vj; hydrastin et leptandrin, ℥ij. Make a mass, divide into twelve pills, and order two to be taken every alternate night at bed-time.

In habitual constipation, from atony of the coats of the bowel, with deficient secretion of intestinal mucus.

R.—Extracti nucis vomicæ, grs. ij; extracti aloes barbadensis, grs. vi; extracti rhei, grs. xx. Divide into six pills. One to be taken every day at dinner.

In some diseases of the rectum, &c.

R.—Extracti hyoscyami, ℥ij; extract colocyntbin compositæ, grs. xx; extracti nucis vomicæ, grs. iii. Divide into twelve pills. Two to be taken every night.

In habitual constipation. They may be continued for about ten days.

*Quinine and Rhubarb.*

R.—Quiniæ sulphatis, grs. ij; extracti lupuli, grs. v; pilulæ rhei compositæ, grs. iii. Two pills, and order them to be taken every day at dinner.

Useful in some forms of dyspepsia.

*Kamela, as an Anthelmintic.*

R.—Pulveris kamelæ, ℥iij–viii; vel tincturæ kamelæ, fl. ℥ij; syrupi aurantii, fl. ℥ij; mucilaginis tragacanthæ, fl. ℥iss; aquæ, fl. ℥iij. Make a draught, to be taken early in the morning. A purgative should be administered six hours afterwards. Kamela is an orange-red resinous substance, found adhering to the capsules of the *rottlera tinctoria*, and is imported from India.

Strongly recommended in tapeworm; positive in therapeutic power.

*Turpentine, as an Anthelmintic.*

R.—Olei ricini, fl. ℥iv; olei terebinthinæ, fl. ℥iij; mucilaginis tragacanthæ, fl. ℥iv; syrupi zingiberis, fl. ℥j, aqua, fl. ℥iv. Make a draught, to be taken early in the morning.

In tapeworm, &c.



*Kousso, as an Anthelmintic.*

R.—Kousso, in pulvere, ℥ss; mellis depurati, sufficient to make an electuary. Half of this electuary to be taken early in the morning, and the remainder six hours afterwards.

In tapeworm.

The official *infusum kousso* may also be taken in the same way, in doses of fl. ℥iv.

*Santonin, as an Anthelmintic.*

R.—Santonini, grs. ii—vi; sacchari lactis, grs. iv. Make a powder. To be taken early in the morning, suspended in a tablespoonful of cream. The patient ought to have fasted for twelve hours previously. The dose may be repeated for eight or ten days, if necessary; and its exhibition should be followed at the end of six hours, by the administration of an ounce of the compound decoction of senna.

A specific for the *ascaris lumbricoides*. Less useful for the *tænia solium* and *oxyuris vermicularis*. The patient should be warned that after a few doses the sight sometimes becomes perverted, so that objects seem to acquire a blue or yellow or some other color.

*Santonine, Podophyllin and Chelonin.*

R.—Santonine, gr. x; podophyllin, gr. ii; chelonin, grs. xx. Make six powders, one every third night, to be followed by a dose of castor oil.

An excellent vermifuge for children.

*Pomegranate, as an Anthelmintic.*

R.—Spiritus ætheris, fl. ℥ss—j; decocti granati radiceis, fl. ℥j—j. Make a draught, to be taken every three hours until four doses have been used.

R.—Granati radiceis corticis, ℥vij; pulveris sabadillæ, grs. vj; pulveris aromatici, ℥ijj. Divide into six powders. One to be taken every two hours until the whole is consumed.

More active than the preceding. A saline purge should be given after the last dose.

*Male Fern, as an Anthelmintic.*

R.—Extracti felicis liquidi, fl. ℥j—ij; syrupi zingiberis, fl. ℥ij; mucilaginis tragacanthæ, fl. ℥j; aquæ, fl. ℥iv. Make a draught, to be taken early in the morning; only liquid nourishment having been allowed the previous day. Four hours afterwards a purgative dose of castor-oil or aloes should be administered.

Especially useful for destroying tapeworms.

*Tobacco Enema.*

R.—Tabaci communis, grs. xv; aquæ bullientis, fl. ℥viij.—*M.*

To be employed cautiously in some exceptional cases of strangulated hernia, obstinate constipation, tetanus.

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Aloes et Myrrha, U. S. P.,		50	2 25	Opil et Plumbi Acet:		80	3 75
Ammon: Bromid: 1 gr.,		75	3 50	Podophyllin et Hydragr:		50	2 25
Anderson's Scots,		40	1 75	Potass: Bromid: 1 gr.,		75	3 50
Anti-bilious (Vegetable),		75	3 50	Potass: Iodid: 2 grs.,		85	4 00
Antimonii Comp: U. S. P. (See Pil: Cal: Comp:),		40	1 75	Quinia Sulph: 1 gr.,		1 00	4 75
Aperient,		90	4 25	" " 1 gr.,		1 60	7 25
Assafoetida, U. S. P.,		40	1 75	" " 2 grs.,		3 10	15 25
" 2 gr.,		40	1 75	" " 3 grs.,		4 60	22 75
" Comp:		40	1 75	Quinia { Quin: Sulph: 1 gr. }			
" et Rhei,		75	3 50	Comp: { Ferr: pr. Hydragr: (Quevenne's), 1 gr. }		1 90	9 25
Bismuth: Subnit: 3 gr.,		75	3 50	{ Acid Arsenious, 1-60 gr. }			
" Subcarb: 3 gr.,		75	3 50	Quinia et Ext: Belladon: { Quinia Sulph: 1 gr. }		1 90	9 25
Calomel: 1 gr.,		40	1 75	{ Ext: Belladon: 1 gr. }			
" 1 gr.,		40	1 75	Quinia { Quin: Sulph: 1 gr. }		1 90	9 25
" 2 gr.,		40	1 75	et Ferri, { Ferr: pr. Hydragr: (Quevenne's), 2 gr. }			
" 3 gr.,		40	1 75	Quinia et Ferri { Quin: Sulph: 1 gr. }		1 90	9 25
" 5 gr.,		50	2 25	et Strychnia. { Ferr: Carb: (Valett's), 2 gr. }			
" Comp: (Plummer's) 3 grs.,		40	1 75	{ Strych: Sulph: 1-60 gr. }			
" et Opil,		85	4 00	Quinia et Ferri Valer: 2 grs.,		3 50	17 25
" et Rhei,		75	3 50	Rhei, U. S. P.,		75	3 50
Cathart: Comp: U. S. P.,		75	3 50	Rhei Comp: U. S. P.,		75	3 50
Chapman's Dinner Pills,		60	2 75	Rheumatic: .		90	4 25
Ceril Oxalat: 1 gr.,		1 00	4 75	Santonin, 1 gr.,		1 00	4 75
Chinoidin, 2 gr.,		50	2 25	Scilla Comp: U. S. P.,		50	2 25
Chinoidin: Comp:		1 00	4 75	Stomachicæ (Lady Webster's Dinner Pills), 3 grs.,		50	2 25
Cinchon: Sulph: 1 gr.,		75	3 50	Zinci Valerian: 1 gr.,		1 00	4 75
Cook's, 3 grs.,		50	2 25				
Colocynthis Comp: 3 gr. (Ext: Coloc: Comp: U.S.P.),		80	3 75				
Colocynth: et Hydragr: et Ipecac:		75	3 50				
Copaiba, U. S. P., 3 gr.,		50	2 25				
" et Ext: Cubebæ,		80	3 75				
" Comp:		80	3 75				
Diuretic,		50	2 25				
Dupuytren:		50	2 25				
Fel: Bovinum,		50	2 25				
Ferri (Quevenne's), 1 gr.,		50	2 25				
Ferri (Quevenne's), 2 gr.,		75	3 50				
Ferri Carb: (Valett's) U. S. P., 3 gr.,		40	1 75				
Ferri Citrat: 2 gr.,		50	2 25				
Ferri Comp: U. S. P.,		40	1 75				
Ferri Ferrocyamid: 5 gr.,		50	2 25				
Ferri Iodid: 1 gr.,		65	3 00				
Ferri Lactat: 1 gr.,		50	2 25				
Ferri Hyrophos: 1 gr.,		40	1 75				
Ferri Sulph: Exsiccet: 2 grs.,		40	1 75				
Ferri Valer: 1 gr.,		1 00	4 75				
Ferri et Quass: et Nuc: Vom:		75	3 50				
Ferri et Quin: Cit: 1 gr.,		75	3 50				
" 2 grs.,		1 40	6 75				
Ferri et Strychnia,		75	3 50				
Ferri et Strychnia: Cit:		75	3 50				
Galbani Comp: U. S. P.,		50	2 25				
Gambogia Comp:		40	1 75				
Gent: Comp:		50	2 25				
Gonorrhœa,		60	2 75				
Hepaticæ,		90	4 25				
Hooper (Female Pills), 2½ grs.,		40	1 75				
Hydragryri, U. S. P., 3 grs.,		40	1 75				
" 5 gr.,		50	2 25				
" Comp:		80	3 75				
" Iod: et Opil (Ricord's),		75	3 50				
Isoform et Ferri,		3 50	17 25				
Ipecac: et Opil: 1 gr. (Pulv: Doveri, U. S. P.),		50	2 25				
Leptand: Comp:		1 00	4 75				
Lupulin, 3 grs.,		40	1 75				

### GRANULES.

Acid, Arsenious, 1-20 gr.,	40	1 75
" " 1 50 gr.,	40	1 75
Aconitia, 1-60 gr.,	75	3 50
Atropia, 1-60 gr.,	75	3 50
Corrosive Sublimate, 1-12 gr.,	40	1 75
" " 1-20 gr.,	40	1 75
Digitalin, 1-60 gr.,	75	3 50
Elaterium (Clutterbuck's), 1-10 gr.,	1 00	4 75
Extract Belladonna (Eng.), 1 gr.,	40	1 75
" Cannabis Indica, 1 gr.,	60	2 75
" Hyoscyamus (Eng.), 1 gr.,	40	1 75
" Nux Vomica, 1 gr.,	40	1 75
Leptandrin, 1 gr.,	75	3 50
" 1 gr.,	50	2 25
" 1 gr.,	40	1 75
" 1 gr.,	40	1 75
Mercury Iodide, 1 gr.,	40	1 75
" " Red, 1-16 gr.,	40	1 75
Morphia Acet: 1 gr.,	85	4 00
" Sulphate, 1-10 gr.,	70	3 25
" " 1 gr.,	85	4 00
" " 1 gr.,	1 00	4 75
" " 1 gr.,	1 25	6 00
" Valerianate, 1 gr.,	1 00	4 75
Podophyllin, 1-10 gr.,	40	1 75
" 1 gr.,	40	1 75
" 1 gr.,	50	2 25
Potass: Permangan: Cryst: 1 gr.,	2 25	9 75
Quinia Valerianate, 1 gr.,	2 00	9 75
Silver, Nitrate, 1 gr.,	75	3 50
Strychnia, 1-20 gr.,	40	1 75
" 1-40 gr.,	40	1 75
" 1-60 gr.,	40	1 75
Veratria, Sulphate, 1-12 gr.,	50	2 25

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" " et Ferri,		40	1 75	" Morphia Comp.,		1 50	7 25
" " et Mastich,		50	2 25	" Opil. U. S. P., 1 gr.,		80	3 75
" Ammon., Bromid., 1 gr.,		75	3 50	" Opil et Camphore,		90	4 25
" Anderson's Scots,		40	1 75	" Opil et Camphore et Tannin,		90	4 25
" Anti-bilious, (vegetable,)		70	3 25	" Opil e Pumbi Acet.,		80	3 75
" Aperient,		90	4 25	" Potophyllin et Hydrarg,		50	2 25
" Assafoetida, 2 gr.,		40	1 75	" Potass., Bromid., 1 gr.,		75	3 50
" " comp.,		40	1 75	" Potass. Iridid, 2 grs.,		85	4 00
" " et Rhei.,		75	3 50	" Quinia Sulph., 1/2 gr.,		1 00	4 75
" Bismuth, Subnit., 3 gr.,		75	3 50	" " 1 gr.,		1 00	7 75
" " Subcarb., 3 gr.,		75	3 50	" " 2 grs.,		3 10	15 25
" Calomel, 1/2 gr.,		40	1 75	" Quinia Comp.,		1 90	9 25
" " 1 gr.,		40	1 75	" Quinia et Ext. Belladon.,		1 90	9 25
" " 2 gr.,		40	1 75	" Quinia et Ferri,		1 90	9 25
" " 3 gr.,		40	1 75	" Quinia et Ferri et Strychnia,		1 90	9 25
" " 5 gr.,		50	2 25	" Quinia et Ferri et Va er., 2 gr.,		3 50	17 25
" " et Opil.,		85	4 00	" Rhei, U. S. P.,		75	3 50
" " et Rhei,		75	3 50	" Rhei. Comp., U. S. P.,		75	3 50
" Cathart., Comp., U. S. P.,		70	3 25	" Rheumatic,		90	4 25
" Chapman's Dinner Pills,		60	2 75	" Santonin, 1 gr.,		1 00	4 75
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" Chinoidin., Comp.,	1 00	4 75		" Dinner Pills) 3 grs.,		50	2 25
" Cinchon., Sulph., 1 1/2 gr.,		75	3 50	" Ziuci Valerian, 1 gr.,		1 00	4 75
" Cook's 3 gr.,		50	2 25				
" Coloc., comp, 3 gr.,		80	3 75				
" Colocynth, et Hydrarg, et Ipecac.		75	3 50				
" Copaiba, U. S. P., 3 gr.,		50	2 25				
" " et Ext. Cubeba,		80	3 75				
" Diuretic,		50	2 25				
" Dupuytren,		50	12 25				
" Emmenagogue,	1 50	7 00					
" Fel., Bovinum,		50	2 25				
" Ferri, (Quevenne's) 1 gr.,		50	2 25				
" " (Quevenne's) 2 gr.,		75	3 50				
" " Carb. (Valett's) 3 gr.,		40	1 75				
" " Citrat., 2 gr.,		50	2 25				
" " Comp., U. S. P.,		40	1 75				
" " Ferrocyanid., 5 gr.,		40	2 00				
" " Iodid., 1 gr.,		75	3 50				
" " Lactat., 1 gr.,		50	2 25				
" " Pyrophosph., 1 gr.,		40	1 75				
" " Sulph., Exsiccac. 2 gr.,		40	1 75				
" " Valer., 1 gr.,	1 00	75	3 50				
" " et Quass., et Nuc. Vcm.,		75	3 50				
" " et Quio. Cit., 1 gr.,		75	3 50				
" " " 2 gr.,	1 40	6 75					
" " et Strychnia,		75	3 50				
" " et Strychnia Cit.,		75	3 50				
" Gamhogia Comp, U. S. P.		40	1 75				
" Gent, Comp,		40	1 75				
" Gonorrhoea,		60	2 75				
" Hepatica,		90	4 25				
" Hooper, (Female Pills), 2 1/2 grs.		40	1 75				
" Hydrargyri, U. S. P., gr.		40	1 75				
" " Comp.,		80	3 75				
" " Iod et Opil,		75	3 50				
" Iodoform et Ferri,	3 50	17 25					
" Ipecac., et Opil, 3 1/2 grs.,	50	2 25					

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Acid, Arsenious, 1-20 gr.	\$0 38	\$1 75
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Aconitia, 1-60 gr.,	75	3 50
Atropia, 1-60 gr.,	75	3 50
Corrosive Sublimate, 1-12 gr.	40	1 75
" " 1-20 gr.	40	1 75
Digitaria, 1-60 gr.	75	3 50
Elaterium, (Clotterbuck's) 1-10 gr.	95	4 50
Extract Belladonna, (English) 1/4 gr.,	40	1 75
" Cannabis Indica, 1/4 gr.,	60	2 75
" Hyoscyamus (Eng.) 1/2 gr.,	40	1 75
" Nux Vomica, 1/2 gr.,	40	1 75
Mercury Iodide, 1/4 gr.,	40	1 75
" " Red 1-16 gr.	40	1 75
Morphia, Acet., 1/2 gr.,	85	4 00
" Sulphate, 1-10 gr.,	70	3 25
" " 1/2 gr.	85	4 00
" " 1/6 gr.,	95	4 75
" Valerianate, 1/2 gr.,	95	4 75
Podophyllin, 1/2 gr.,	40	1 25
" " 1/2 gr.,	50	2 25
Potass., Permangan. Chryst., 1/8 gr.,	50	2 25
Quinia Valerianate, 1/2 gr.,	2 00	9 50
Silver Nitrate, 1/4 gr.,	75	2 75
Strychnia, 1-20 gr.,	40	1 75
" " 1-40 gr.,	40	1 75
" " 1-60 gr.,	40	1 75
Veratrine Sul, 1-12 gr.,	50	2 25

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